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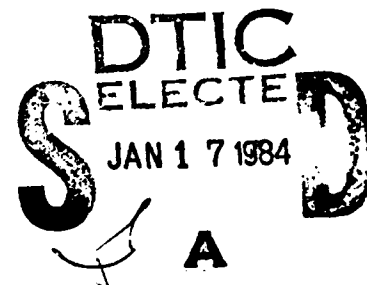# Classroom Materials for Job-Related BSEP II Program

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U. S. Army

Research Institute for the Behavioral and Social Sciences

September 1983

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REPORT DOCUMENTATION PAGE	READ INSTRUCTIONS BEFORE COMPLETING FORM

1. REPORT NUMBER	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
ARI Research Note 83-36	AD-A136 888	

4. TITLE (and Subtitle)	5. TYPE OF REPORT & PERIOD COVERED
CLASSROOM MATERIALS FOR JOB-RELATED BSEP II PROGRAM	Technical September 1981-September 1982
	6. PERFORMING ORG. REPORT NUMBER MGA-0878-MRO

7. AUTHOR(s)	8. CONTRACT OR GRANT NUMBER(s)
Avant, R., McGuire, W., and Howard, J.	MDA903-79-C-0194

9. PERFORMING ORGANIZATION NAME AND ADDRESS	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
McFann-Gray & Associates, Inc. Building T104, P.O. Box 5705 Presidio of Monterey, CA 93940	2Q263743A794

11. CONTROLLING OFFICE NAME AND ADDRESS	12. REPORT DATE
U.S. Army Research Institute for the Behavioral and Social Sciences 5001 Eisenhower Avenue, Alexandria, VA 22333	September 1983
	13. NUMBER OF PAGES 777

14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office)	15. SECURITY CLASS. (of this report)
--	UNCLASSIFIED
	15a. DECLASSIFICATION/DOWNGRADING SCHEDULE --

16. DISTRIBUTION STATEMENT (of this Report)

Approved for public release; distribution unlimited.

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

--

18. SUPPLEMENTARY NOTES

Contracting officer's representative was Dr. Jack H. Hiller.

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Adult literacy	Language skills
Basic skills	Math skills
Functional literacy	Reading training
Job skills training	Math training

Basic Skills Education Program

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

> This volume, which contains prototype BSEP II classroom materials, is one of three documents describing the development of a management system for integrating BSEP II training and unit training. The other two documents include ARI Research Report 1346, Management System for Integrating Basic Skills II Training and Unit Training Programs, which describes the total research effort and reports the results of a field test, and ARI Research Note 83-38, BSEP II Lesson Developer's Guide.

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CLASSROOM MATERIALS FOR JOB-RELATED BSEP II PROGRAM

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C

MODULE PREVIEW

CAPITALIZATION

Instructions: Count from the left of each line to determine the number of each word that should be capitalized. Write the number or numbers on the short line to the right. Be careful! Not all the lines may have an error.

Example: the squad leader, SGT thomas, held inspection.   __1, 5__

Numbers of
words that
should be
capitalized:

1. The black history club held a meeting last friday   1._____

2. at stilwell hall. They are planning some seminars   2._____

3. for june. one will be a music appreciation course   3._____

4. featuring african music. There will also be a   4._____

5. course titled "tracing your roots" for people who   5._____

6. want to find out about their ancestors. james gordon, 6._____

7. mr. earl roswell, and a doctor of history from the   7._____

8. university of california will conduct the classes.   8._____

9. The famous black poet, valerie raines, will read   9._____

10. some of her poetry. One poem, titled "it wasn't   10._____

11. quite clear", contains the lines: 11._____

12.   i probably should know   12._____

13.   what you said to me,   13._____

14.   but i don't want to hear   14._____

15.   that you're leaving me.   15._____

16. This poem appears in ms. raines' book, new sense.   16._____

ANSWER KEY/DIAGNOSTIC

MODULE PREVIEW

CAPITALIZATION

Instructions: Count from the left of each line to determine the number of each word that should be capitalized. Write the number or numbers on the short line to the right. Be careful! Not all the lines may have an error.

Example: the squad leader, SGT thomas, held inspection.   __1, 5__

1.	The black history club held a meeting last friday	1. 2,3,4:4/9:3
2.	at stilwell hall. They are planning some seminars	2. 2,3:2
3.	for june. one will be a music appreciation course	3. 2:3/3:1
4.	featuring african music. There will also be a	4. 2:4
5.	course titled "tracing your roots" for people who	5. 3,4,5:5
6.	want to find out about their ancestors. james gordon,	6. 8,9:2
7.	mr. earl roswell, and a doctor of history from the	7. 1:6/2,3:2
8.	university of california will conduct the classes.	8. 1,3:2
9.	The famous black poet, valerie raines, will read	9. 3:4/5,6:2
10.	some of her poetry. One poem, titled "it wasn't	10. 8,9:8
11.	quite clear", contains the lines:	11. 1,2:8
12.	i probably should know	12. 1:8
13.	what you said to me,	13. 1:8
14.	but i don't want to hear	14. 1:8/2:2
15.	that you're leaving me.	15. 1:8
16.	This poem appears in ms, raines' book, new sense.	16. 5:6/6:2/8,9:7

READING THE ANSWER KEY/DIAGNOSTIC:

Numbers of words which should be capitalized (and the number written in the answer blank) are typed in straight numerals followed by a colon. The underlined, script number following the colon is the number of the activity sheet which should be assigned if the proper word or words are not indicated in the answer blank. For lines which diagnose more than one type of capitalization problem on the same line, the types of problems are separated by a slash (/). Thus, for Item 3, if the 2nd word is not listed in the answer blank, assign Activity Sheet 3; and if the 3rd word in the same line is not indicated in the answer blank, assign Activity Sheet 1.

MODULE RECORD SHEET

CAPITALIZATION

OBJECTIVE: Given any sentence, capitalize all the words which should be capital-
ized, according to the rules for capitals.

SAMPLE TEST ITEMS:
1. Underline all words which should be capitalized in the following
    sentence:

    a. My brother's name is <u>sgt</u>. <u>peter jones</u>.

2. Count from the left of each line to determine the number of each
    word that should be capitalized. Write the number or numbers on
    the short line to the right. Be careful! Not all lines may have
    an error in them.

    a. I delivered the papers to captain Whitman and   a. ___6___

    b. the lieutenant at company b.   b. __4,5__

INTRODUCTION TO CAPITALS:
    Capitals are used to set off words that are special in some way. For
instance, the first word of every sentence is capitalized. So is the pronoun
"I", and any proper noun in a sentence. The activity sheets will tell you
how to use capitals in sentences. Work through all the activity sheets
that have been circled below. You can check your own work using the
Checklists your teacher has shown you. If you have any questions about
why a word should or should not be capitalized, ask your teacher. When you
are through with all the activity sheets and are sure you understand
all the rules for capitals, ask to take the Module Review.

ACTIVITY SHEETS (Do those that are circled)

1.	Initial Capitals	1A	1B
2.	Proper Names and Nouns	2A	2B
3.	Days, Months, and Holidays	3A	3B
4.	Special Groups, Events, Religions, and Races	4A	4B
5.	Languages and Course Titles	5A	5B
6.	Honorifics	6A	6B
7.	Book and Magazine Titles	7A	7B
8.	Lines and Titles of Poetry	8A	8B

MODULE REVIEW
CAPITALIZATION

Instructions: Count from the left of each line to determine the number of each word that should be capitalized. Write the number or numbers on the short line to the right. Be careful! Not all the lines may have an error.

Example: the squad leader, SGT thomas, held inspection.   __1, 5__

Numbers of
words that
should be
capitalized:

1. king junior college will start its new semester   1. _____

2. on monday, may 10th. The courses include three   2. _____

3. history classes, chemistry 101, and a literature   3. _____

4. course featuring mexican folk tales. You can   4. _____

5. also take french or spanish. doctor jane parker   5. _____

6. will conduct a poetry seminar. The works of   6. _____

7. mr. robert frost will be featured. he wrote a   7. _____

8. famous poem called, "the road not taken", which   8. _____

9. ends with these lines: 9. _____

10.   two roads diverged in a wood, and I --   10. _____

11.   i took the one less traveled by,   11. _____

12.   and that has made all the difference.   12. _____

13. The textbook for the class is titled,   13. _____

14. american poets, old and new. the class   14. _____

15. will be held at the monterey cultural center.   15. _____

Name_____

MODULE REVIEW
CAPITALIZATION

Instructions: Count from the left of each line to determine the number of each word that should be capitalized. Write the number or numbers on the short line to the right. Be careful! Not all the lines may have an error.

Example: the squad leader, SGT thomas, held inspection.   1, 5

1.	king junior college will start its new semester	1. 1,2,3:*2*,*4*
2.	on monday, may 10th. The courses include three	2. 2,3:*3*
3.	history classes, chemistry 101, and a literature	3. ①:*5*/3:*5*
4.	course featuring mexican folk tales. You can	4. 3:*4*
5.	also take french or spanish. doctor jane parker	5. 3,5:*5*/6:*6*/7,8:*2*
6.	will conduct a poetry seminar. The works of	6. ④:*5*
7.	mr. robert frost will be featured. he wrote a	7. 1:*6*/2,3:*2*/7:*1*
8.	famous poem called, "the road not taken", which	8. 4,5,6,7:*8*
9.	ends with these lines:	9. none
10.	two roads diverged in a wood, and I --	10. 1:*8*
11.	i took the one less traveled by,	11. 1:*8*
12.	and that has made all the difference.	12. 1:*8*
13.	The textbook for the class is titled,	13. none
14.	american poets, old and new. the class	14. 1,2,3,5:*7*/6:*1*
15.	will be held at the monterey cultural center.	15. 6,7,8:*2*,*4*

READING THE ANSWER KEY/DIAGNOSTIC:

Numbers of words which should be capitalized (and the number written in the answer blank) are typed in straight numerals followed by a colon. The underlined, script number following the colon is the number of the activity sheet which should be assigned if the proper word or words are not indicated in the answer blank. For lines which diagnose more than one type of capitalization problem, the types of problems are separated by a slash (/). If a straight-typed numeral appears within a circle (①), that word should not appear on the answer blank. If it does appear, the indicated activity sheet should be assigned. Thus, for Item 3, if the 1st word is indicated in the answer blank, assign Activity Sheet 5; if the 3rd word is not indicated in the answer blank, assign Activity Sheet 5.

> Capitalize the first word of every sentence.

Instructions: Underline every word that should be capitalized in the following sentences.

Example: <u>your</u> protective mask will keep you from breathing dangerous gases.

1. rick is carrying his protective mask.

2. he has seen a cloud of white smoke.

3. he must put on his mask.

4. he has nine seconds to put on his mask.

5. rick also has a hood.

6. he must put that on in six seconds.

7. he is wearing a helmet.

8. first, he must remove the helmet.

9. he can hold the helmet between his knees.

10. he can also hang the helmet from the muzzle of his rifle.

Capitalization
Activity Sheet 2A
Proper Names and Proper Nouns

Name_____

> A proper name or a proper noun is a word that refers to a <u>particular</u> person or thing. For instance, "the man" could refer to anyone, but the word "Mike" refers to a particular man named Mike. The word "island" is a general or common noun, but "Alcatraz Island" is a particular place.
> Capitalize every proper noun in a sentence. Make sure you always capitalize the word "I" in a sentence, because it refers to a particular person, yourself.

Instructions: Underline every word that should be capitalized in the following sentences.

Example: We were inspected by <u>sergeant</u> <u>ford</u> and the lieutenant.
(Note: You need to capitalize <u>sergeant</u> <u>ford</u> because the title and name refer to a particular person. But lieutenant is not capitalized, because it could refer to any lieutenant.)

1. I'm stationed at fort ord, california.

2. Jim and i enlisted at the same time.

3. The u.s. army made us both infantrymen.

4. We went out for maneuvers with a platoon from c company.

5. My platoon was defending north merrilis hill.

6. The other platoon was attacking from camp huffman.

7. They were so good that they were almost on top of jim's position before we saw them.

8. Our platoon sergeant, SGT martinez, ordered us to throw smoke.

9. You should have seen those c company guys scramble for their gas masks.

10. They gave away their positions, and we pushed them all the way back to camp huffman.

Capitalization
Activity Sheet 3A   Name_____
Days, Months, and Holidays

> The names of days and months are always capitalized. Also, the names of special days such as holidays are capitalized.

Instructions: Count from the left of each line to determine the number of each word that should be capitalized. Write the number or numbers on the short line to the right. Be careful! Not all lines have an error on them.

Example: a. The 24th of february is ash wednesday.   a. __4, 6, 7__

b. It is a religious holiday.   b. __none__

Number of
words at
should
capita ed:

1. On the last tuesday of each month, SGT Farris   1. _____

2. makes out his training calendar for the next month.   2. _____

3. It tells us, for instance, what we will do each   3. _____

4. day in february. Yesterday was wednesday, and   4. _____

5. SGT Farris gave me his new training calendar   5. _____

6. to type. This training calendar is for the   6. _____

7. month of april. The day after easter is a   7. _____

8. training holiday. We don't get palm sunday   8. _____

9. off, however. The line companies are going to   9. _____

10. the rifle range for two days starting on tuesday.   10. _____

11. We have motor stables every wednesday afternoon.   11. _____

12. Starting on the last thursday morning, we will be   12. _____

13. doing runs with full gear. Those runs will   13. _____

14. continue into the month of june.   14. _____

Name_____

> The names of special groups are always capitalized. These can be the names of clubs, like Weight Watchers, or of religious groups, like Mormons, or of races or ethnic groups, like American Indians. Also, any event which is special is capitalized. The word "marathon", which is a long race, is not capitalized when it appears alone, but the Boston Marathon is a particular race and it is capitalized.

Instructions: Count from the left of each line to determine the number of each word that should be capitalized. Write the number or numbers on the short line to the right. Be careful! Not all the lines have an error in them.

Example: a. My club, the west end athletic club, went to   a. _4,5,6,7_

          b. see the superbowl game last year.   b. _3,4_

Numbers of words that should be capitalized:

1. My community has a group called the cultural   1. _____

2. awareness committee that sponsors several clubs.   2. _____

3. The polynesian club is very active. Besides people   3. _____

4. from the Hawaiian Islands, there are several samoans   4. ___ ___

5. in the group. The african roots club is another   5. _____

6. active group. It is for people who are interested   6. _____

7. in black culture and history. There are several   7. _____

8. religious clubs, such as the christian seekers club.   8. _____

9. Jews and buddhists also have special clubs. Next   9. _____

10. month, the clubs are holding "cultural awareness day".   10. _____

11. A special "black art auction" will be held.   11. _____

12. Several clubs will sponsor the annual "international dinner",   12. _____

13. which will feature foods from different cultures and lands.   13. _____

Capitalization
Activity Sheet 5A   Name_____
Languages and Specific Courses

> Names of languages, such as Russian and German, are always capitalized.
> School subjects such as biology are not capitalized, but specific courses such
> as Biology 201 or Modern Poetry are capitalized.

Instructions: Count from the left of each line to determine the number
of each word that should be capitalized. Write the number or numbers on the
short line to the right. Be careful! Not all the lines have an error in them.

Example: a. The three courses I took were chinese,   a. ___7___

          b. creative writing, and a physics course.   b. __1,2__

Numbers of
words that
should be
capitalized:

1.	Danny is taking english and math classes in	1. _____
2.	night high school. His friend, Anne, is	2. _____
3.	taking spanish. Danny speaks spanish very well,	3. _____
4.	so he sometimes helps Anne. In return, she helps	4. _____
5.	him with his math course, algebra 101. The night	5. _____
6.	high school also has courses in french and	6. _____
7.	history. Danny took history 201 last year. He	7. _____
8.	doesn't like history courses as much as he likes	8. _____
9.	english courses. However, he needs to take a	9. _____
10.	course called history of western europe next	10. _____
11.	semester. He would rather take english literature	11. _____
12.	or a math course. Anne has promised to help him next	12. _____
13.	semester so he can finish history 205 with a good grade.	13. _____

Honorifics are special titles given to people. They are always capitalized. Sometimes common nouns are used as honorifics. For instance, the word "captain" is a common noun, so it isn't capitalized. But if you use it to refer to a specific person, such as Captain Black, then it must be capitalized because it is an honorific.

Instructions: Count from the left of each line to determine the number of each word that should be capitalized. Write the number or numbers on the short line to the right. Be careful! Not all lines may have an error in them.

Example: a. The preacher at our church is reverend Walter Dobbs. a. _7_____

Numbers of words that should be capitalized:

1. Many people have titles in front of their names,   1. _____

2. such as doctor Johnson. Titles such as   2. _____

3. captain Smith are called honorifics. They show   3. _____

4. honor to someone who has a special position, such   4. _____

5. as general Brown. Honorifics are often abbreviated   5. _____

6. or shortened, like the word "mister" is abbreviated   6. _____

7. in the title "mr. Thompson". Other honorifics are   7. _____

8. not usually abbreviated, such as lord Nelson. The   8. _____

9. honorific to be used when talking to a judge is "your   9. _____

10. honor". A judge's name might be written, "the honorable   10. _____

11. Sandra Day O'Connor". She might also be called   11. _____

12. "judge O'Connor", because the word "judge" can be an   12. _____

13. honorific. The word "sergeant" is abbreviated   13. _____

14. in the title, sgt. Williams. The superintendent of   14. _____

15. a school might be called superintendent Rossini.   15. _____

Capitalization
Activity Sheet 7A   Name_____
Book and Magazine Titles

> Magazine titles, such as "Sunset" and "National Geographic", are always capitalized.
> All the important words in book titles are capitalized, but not the little or un-
> important ones. For instance, all the words in the book title The Way West are
> important, so they are all capitalized. But in the book title The Prime of Miss
> Jean Brodie, the word "of" is not important, so it is not capitalized.

Instructions: Count from the left of each line to determine the number
of each word that should be capitalized. Write the number or numbers on the
short line to the right. Be careful! Not all lines may have an error in them.

Example: a. The newest issue of "playboy" has a good   a. __5__

          b. article on sailing.   b. __none__

Numbers of
words that
should be
capitalized:

1. Manuals such as the soldier's manual of common tasks   1. _____

2. can help you learn your Army job. Some books deal   2. _____

3. with specific jobs, too, like a book called the   3. _____

4. uniform plumbing code. Even magazines such as   4. _____

5. "mechanics illustrated" can teach you more about   5. _____

6. your job. One manual which helps clerks and supplymen   6. _____

7. is called the army maintenance management schedule.   7. _____

8. There is a popular cookbook called the joy of cooking.   8. _____

9. The magazine called "car and driver" is a good one for   9. _____

10. auto buffs. A book which helps people to budget is   10. _____

11. called how to manage money. An Army manual called land   11. _____

12. navigation is very useful for troops in the field. You   12. _____

13. can find many good Army texts, like one called rifle   13. _____

14. marksmanship, in your MOS library. Magazines like   14. _____

15. "popular electronics" and others to help you in your job 15. _____

16. can be found in your local library or bookstore.   16. _____

> Poem titles are like book titles. All the important words should be
> capitalized. Also, the first word of every line of poetry should be capitalized.

Instructions: Count from the left of each line to determine the number
of each word that should be capitalized. Write the number or numbers on the
short line to the right. Be careful! Not all the lines may have an error in them.

Example: a.   The last line of the poem called "mending wall" is: a. __8,9___

          b.   he says again, "Good fences make good neighbors".   b. __1____

Numbers of
words that
should be
capitalized:

1.   This short poem, called "fire and ice", was   1._____

2.   written by Robert Frost, an American poet: 2._____

3.   some say the world will end in fire,   3._____

4.   some say in ice.   4._____

5.   from what I've tasted of desire   5._____

6.   I hold with those who favor fire.   6._____

7.   but if it had to happen twice,   7._____

8.   I think I know enough of hate   8._____

9.   to say that for destruction, ice   9._____

10.   is also great   10._____

11.   and would suffice.   11._____

Capitalization
Activity Sheet 1A   Name_____
Initial Capitals

Capitalize the first word of every sentence.

Instructions: Underline every word that should be capitalized in the following sentences.

Example: your protective mask will keep you from breathing dangerous gases.

1. rick is carrying his protective mask.

2. he has seen a cloud of white smoke.

3. he must put on his mask.

4. he has nine seconds to put on his mask.

5. rick also has a hood.

6. he must put that on in six seconds.

7. he is wearing a helmet.

8. first, he must remove the helmet.

9. he can hold the helmet between his knees.

10. he can also hang the helmet from the muzzle of his rifle.

Capitalization
Activity Sheet 2A   Name_____
Proper Names and Proper Nouns

   A proper name or a proper noun is a word that refers to a <u>particular</u> person or thing. For instance, "the man" could refer to anyone, but the word "Mike" refers to a particular man named Mike. The word "island" is a general or common noun, but "Alcatraz Island" is a particular place.
   Capitalize every proper noun in a sentence. Make sure you always capitalize the word "I" in a sentence, because it refers to a particular person, yourself.

   Instructions: Underline every word that should be capitalized in the following sentences.

   Example: We were inspected by <u>sergeant</u> <u>ford</u> and the lieutenant.
   (Note: You need to capitalize <u>sergeant</u> <u>ford</u> because the title and name refer to a particular person. But lieutenant is not capitalized, because it could refer to any lieutenant.)

1. I'm stationed at <u>fort</u> <u>ord</u>, <u>california</u>.

2. Jim and <u>i</u> enlisted at the same time.

3. The <u>u.s.</u> <u>army</u> made us both infantrymen.

4. We went out for maneuvers with a platoon from <u>c</u> <u>company</u>.

5. My platoon was defending <u>north</u> <u>merrilis</u> <u>hill</u>.

6. The other platoon was attacking from <u>camp</u> <u>huffman</u>.

7. They were so good that they were almost on top of <u>jim's</u> position before we saw them.

8. Our platoon sergeant, SGT <u>martinez</u>, ordered us to throw smoke.

9. You should have seen those <u>c</u> <u>company</u> guys scramble for their gas masks.

10. They gave away their positions and we pushed them all the way back to <u>camp</u> <u>huffman</u>.

The names of days and months are always capitalized. Also, the names of special days such as holidays are capitalized.

Instructions: Count from the left of each line to determine the number of each word that should be capitalized. Write the number or numbers on the short line to the right. Be careful! Not all lines have an error on them.

Example: a. The 24th of february is ash wednesday.   a. __4, 6, 7__

          b. It is a religious holiday.   b. __none__

Numbers of
words that
should be
capitalized:

1. On the last tuesday of each month, SGT Farris   1. ___4___

2. makes out his training calendar for the next month.   2. __none__

3. It tells us, for instance, what we will do each   3. __none__

4. day in february. Yesterday was wednesday, and   4. __3, 6__

5. SGT Farris gave me his new training calendar   5. __none__

6. to type. This training calendar is for the   6. __none__

7. month of april. The day after easter is a   7. __3, 7__

8. training holiday. We don't get palm sunday   8. __6, 7__

9. off, however. The line companies are going to   9. __none__

10. the rifle range for two days starting on tuesday.   10. ___9___

11. We have motor stables every wednesday afternoon.   11. ___6___

12. Starting on the last thursday morning, we will be   12. ___5___

13. doing runs with full gear. Those runs will   13. __none__

14. continue into the month of june.   14. ___6___

Capitalization

Activity Sheet 4A   Name_____
Special Groups, Events,
Religions, and Races

      The names of special groups are always capitalized. These can be the
names of clubs, like Weight Watchers, or of religious groups, like Mormons,
or of races or ethnic groups, like American Indians. Also, any event which
is special is capitalized. The word "marathon", which is a long race, is not
capitalized when it appears alone, but the Boston Marathon is a particular race
and it is capitalized.

      Instructions: Count from the left of each line to determine the number
of each word that should be capitalized. Write the number or numbers on the
short line to the right. Be careful! Not all the lines have an error in them.

Example:	a. My club, the west end athletic club, went to	a. 4,5,6,7
	b. see the superbowl game last year.	b. 3,4

Numbers of
words that
should be
capitalized:

1. My community has a group called the cultural	1. 8
2. awareness committee that sponsors several clubs.	2. 1, 2
3. The polynesian club is very active. Besides people	3. 2, 3
4. from the Hawaiian Islands, there are several samoans	4. 8
5. in the group. The african roots club is another	5. 5, 6, 7
6. active group. It is for people who are interested	6. none
7. in black culture and history. There are several	7. 2
8. religious clubs, such as the christian seekers club.	8. 6, 7, 8
9. Jews and buddhists also have special clubs. Next	9. 3
10. month, the clubs are holding "cultural awareness day".	10. 6, 7, 8
11. A special "black art auction" will be held.	11. 3, 4, 5
12. Several clubs will sponsor the annual "international dinner",	12. 7, 8
13. which will feature foods from different cultures and lands.	13. none

Capitalization
Activity Sheet 5A   Name_____
Languages and Specific Courses

     Names of languages, such as Russian and German, are always capitalized.
School subjects such as biology are not capitalized, but specific courses such
as Biology 201 or Modern Poetry are capitalized.

     Instructions: Count from the left of each line to determine the number
of each word that should be capitalized. Write the number or numbers on the
short line to the right. Be careful! Not all the lines have an error in them.

Example:	a. The three courses I took were chinese,	a. __7__
	b. creative writing, and a physics course.	b. __1,2__

Numbers of
words that
should be
capitalized:

1.	Danny is taking english and math classes in	1. __4__
2.	night high school. His friend, Anne, is	2. __none__
3.	taking spanish. Danny speaks spanish very well,	3. __2, 5__
4.	so he sometimes helps Anne. In return, she helps	4. __none__
5.	him with his math course, algebra 101. The night	5. __6__
6.	high school also has courses in french and	6. __7__
7.	history. Danny took history 201 last year. He	7. __4__
8.	doesn't like history courses as much as he likes	8. __none__
9.	english courses. However, he needs to take a	9. __1__
10.	course called history of western europe next	10. __3, 5, 6__
11.	semester. He would rather take english literature	11. __6, 7__
12.	or a math course. Anne has promised to help him next	12. __none__
13.	semester so he can finish history 205 with a good grade.	13. __6__

Capitalization
Activity Sheet 6A   Name_____
Honorifics

    Honorifics are special titles given to people. They are always capitalized. Sometimes common nouns are used as honorifics. For instance, the word "captain" is a common noun, so it isn't capitalized. But if you use it to refer to a specific person, such as Captain Black, then it must be capitalized because it is an honorific.

    Instructions: Count from the left of each line to determine the number of each word that should be capitalized. Write the number or numbers on the short line to the right. Be careful! Not all lines may have an error in them.

    Example: a. The preacher at our church is reverend Walter Dobbs. a. 7

Numbers of
words that
should be
capitalized:

1. Many people have titles in front of their names,	1.	none
2. such as doctor Johnson. Titles such as	2.	3
3. captain Smith are called honorifics. They show	3.	1
4. honor to someone who has a special position, such	4.	none
5. as general Brown. Honorifics are often abbreviated	5.	2
6. or shortened, like the word "mister" is abbreviated	6.	none
7. in the title "mr. Thompson". Other honorifics are	7.	4
8. not usually abbreviated, such as lord Nelson. The	8.	6
9. honorific to be used when talking to a judge is "your	9.	11
10. honor". A judge's name might be written, "the honorable	10.	1, 8, 9
11. Sandra Day O'Connor". She might also be called	11.	none
12. "judge O'Connor", because the word "judge" can be an	12.	1
13. honorific. The word "sergeant" is abbreviated	13.	none
14. in the title, sgt. Williams. The superintendent of	14.	4
15. a school might be called superintendent Rossini.	15.	6

Capitalization
Activity Sheet 7A   Name _____
Book and Magazine Titles

   Magazine titles, such as "Sunset" and "National Geographic", are always capitalized.
All the important words in book titles are capitalized, but not the little or un-
important ones. For instance, all the words in the book title The Way West are
important, so they are all capitalized. But in the book title The Prime of Miss
Jean Brodie, the word "of" is not important, so it is not capitalized.

   Instructions: Count from the left of each line to determine the number
of each word that should be capitalized. Write the number or numbers on the
short line to the right. Be careful! Not all lines may have an error in them.

Example:	a. The newest issue of "playboy" has a good	a. __5__
	b. article on sailing.	b. __none__

Numbers of
words that
should be
capitalized:

1.	Manuals such as the soldier's manual of common tasks	1. __5,6,8,9__
2.	can help you learn your Army job. Some books deal	2. __none__
3.	with specific jobs, too, like a book called the	3. __none__
4.	uniform plumbing code. Even magazines such as	4. __1,2,3__
5.	"mechanics illustrated" can teach you more about	5. __1,2__
6.	your job. One manual which helps clerks and supplymen	6. __none__
7.	is called the army maintenance management schedule.	7. __3,4,5,6,7__
8.	There is a popular cookbook called the joy of cooking.	8. __7,8,10__
9.	The magazine called "car and driver" is a good one for	9. __4,6__
10.	auto buffs. A book which helps people to budget is	10. __none__
11.	called how to manage money. An Army manual called land	11. __2,4,5,10__
12.	navigation is very useful for troops in the field. You	12. __1__
13.	can find many good Army texts, like one called rifle	13. __10__
14.	marksmanship, in your MOS library. Magazines like	14. __1__
15.	"popular electronics" and others to help you in your job	15. __1,2__
16.	can be found in your local library or bookstore.	16. __none__

Capitalization
Activity Sheet 8A   Name_____
Lines and Titles of Poetry

     Poem titles are like book titles. All the important words should be
capitalized. Also, the first word of every line of poetry should be capitalized.

    Instructions: Count from the left of each line to determine the number
of each word that should be capitalized. Write the number or numbers on the
short line to the right. Be careful! Not all the lines may have an error in them.

Example:	a.	The last line of the poem called "mending wall" is:	a.	8,9
	b.	he says again, "Good fences make good neighbors".	b.	1

Numbers of
words that
should be
capitalized:

1.	This short poem, called "fire and ice", was	1.	5,7
2.	written by Robert Frost, an American poet:	2.	none
3.	some say the world will end in fire,	3.	1
4.	some say in ice.	4.	1
5.	from what I've tasted of desire	5.	1
6.	I hold with those who favor fire.	6.	none
7.	but if it had to happen twice,	7.	1
8.	I think I know enough of hate	8.	none
9.	to say that for destruction, ice	9.	1
10.	is also great	10.	1
11.	and would suffice.	11.	1

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MODULE PREVIEW

PUNCTUATION

Instructions: Decide which punctuation mark is left out of each line.
Mark it in the answer space to the right. Then count from the left and determine
the number of the word closest to where the missing mark belongs. Mark your
answer in the answer space to the right.

NOTE: Some lines are <u>not</u> numbered and are <u>not</u> items.

Example:	Missing Punctuation Mark	Closest Word Number

		,	.	!	?	"	1	2	3	4	5
1.	"What" asked SGT Thomas. "Did	O	O	O	●	O	●	O	O	O	O

	I hear you say that	,	'	?	"	.	1	2	3	4	5
2.	you dont have a helmet?"	O	●	O	O	O	O	●	O	O	O

		"	,	.	?	!	1	2	3	4	5
1.	"Men " said SGT Paine, "today	O	O	O	O	O	O	O	O	O	O

		?	'	.	!	,	1	2	3	4	5
2.	were going to learn something	O	O	O	O	O	O	O	O	O	O

		?	"	,	!	'	1	2	3	4	5
3.	about masking. Of course it's	O	O	O	O	O	O	O	O	O	O

		.	?	"	'	,	1	2	3	4	5
4.	very important. First of all	O	O	O	O	O	O	O	O	O	O

| | how many of you brought | | | | | | | | | | |

		?	"	,	.	!	1	2	3	4	5
5.	your masks today " he continued.	O	O	O	O	O	O	O	O	O	O

		?	"	,	.	!	1	2	3	4	5
6.	Of twenty men there only	O	O	O	O	O	O	O	O	O	O

		?	"	.	'	,	1	2	3	4	5
7.	one, Williams didn't raise his	O	O	O	O	O	O	O	O	O	O

		?	"	.	!	'	1	2	3	4	5
8.	hand. "Williams" shouted the platoon	O	O	O	O	O	O	O	O	O	O

		?	"	.	,	'	1	2	3	4	5
9.	sergeant. Where's your mask?" Williams	O	O	O	O	O	O	O	O	O	O

		?	"	.	'	,	1	2	3	4	5
10.	said "I don't know. It	O	O	O	O	O	O	O	O	O	O

		?	"	.	'	,	1	2	3	4	5
11.	was on PVT Romeros bunk."	O	O	O	O	O	O	O	O	O	O

| | PVT Romero said, "I found | | | | | | | | | | |

		?	"	.	'	,	1	2	3	4	5
12.	a mask an M17A1, on	O	O	O	O	O	O	O	O	O	O

		?	"	.	'	,	1	2	3	4	5
13.	my bunk but it wasn't	O	O	O	O	O	O	O	O	O	O

Name _____

		Missing Punctuation Mark					Closest Word Number				
		"	,	.	?	!	1	2	3	4	5
14.	marked sir. That was over	O	O	O	O	O	O	O	O	O	O
		?	'	.	!	,	1	2	3	4	5
15.	two weeks ago, on Monday	O	O	O	O	O	O	O	O	O	O
	March 22. I turned the										
		.	?	"	'	,	1	2	3	4	5
16.	mask in at the Co	O	O	O	O	C	O	O	O	O	O
		?	"	,	.	'	1	2	3	4	5
17.	Orderlys office." The sergeant shouted,	O	O	O	O	O	O	O	O	O	O
		?	"	,	.	!	1	2	3	4	5
18.	"Williams Go back to the	O	O	O	O	O	O	O	O	O	O
		?	"	,	.	!	1	2	3	4	5
19.	company area. Get your mask	O	O	O	O	O	O	O	O	O	O
		?	"	.	'	,	1	2	3	4	5
20.	web gear hood, and carrier!	O	O	O	O	O	O	O	O	O	O

Instructions: Decide which punctuation mark is left out of each line.
Mark it in the answer space to the right. Then count from the left and determine
the number of the word closest to where the missing mark belongs. Mark your
answer in the answer space to the right.

NOTE: Some lines are not numbered and are not items.

IF WRONG, ASSIGN:

#	Sentence	"	,	.	?	!	1	2	3	4	5	If wrong, assign
1.	"Men " said SGT Paine, "today	O	●	O	O	O	●	O	O	O	O	1. 4,8,13
2.	were going to learn something	O (?)	● (')	O (.)	O (!)	O (,)	●	O	O	O	O	2. 11,13
3.	about masking. Of course it's	O (?)	O (")	● (,)	O (!)	O (')	O	O	O	●	O	3. 5,13
4.	very important. First of all	O (.)	O (?)	O (")	O (')	● (,)	O	O	O	O	●	4. 5,13
	how many of you brought											
5.	your masks today " he continued.	● (?)	O (")	O (,)	O (.)	O (!)	O	O	●	O	O	5. 9,13
6.	Of twenty men there only	O (?)	O (")	● (,)	O (.)	O (!)	O	O	O	●	O	6. 5,13
7.	one, Williams didn't raise his	O (?)	O (")	O (.)	O (')	● (,)	O	●	O	O	O	7. 3,13
8.	hand. "Williams" shouted the platoon	O (?)	O (")	O (.)	● (!)	O (')	O	●	O	O	O	8. 1,9,13
9.	sergeant. Where's your mask?" Williams	O (?)	● (")	O (.)	O (,)	O (')	O	●	O	O	O	9. 9,13
10.	said "I don't know. It	O (?)	O (")	O (.)	O (')	● (,)	●	O	O	O	O	10. 8,13
11.	was on PVT Romeros bunk."	O (?)	O (")	O (.)	● (')	O (,)	O	O	O	●	O	11. 10,13
	PVT Romero said, "I found											
12.	a mask an M17A1, on	O (?)	O (")	O (.)	O (')	● (,)	O	●	O	O	O	12. 3,13
13.	my bunk but it wasn't	O (?)	O (")	O (.)	O (')	● (,)	O	●	O	O	O	13. 7,13

25

IF WRONG,
ASSIGN:

14. marked sir. That was over

    " , . ? !   1 2 3 4 5   14. 4,13
    O ● O O O   ● O O O O

15. two weeks ago, on Monday

    ? ' . ! ,   1 2 3 4 5   15. 6,13
    O O O O ●   O O O O ●

    March 22. I turned the

16. mask in at the Co

    . ? " ' ,   1 2 3 4 5   16. 12,13
    ● O O O C   O O O O ●

17. Orderlys office." The sergeant shouted,

    ? " , . '   1 2 3 4 5   17. 10,13
    O O O O ●   ● O O O O

18. "Williams   Go back to the

    ? " , . !   1 2 3 4 5   18. 1,13
    O O O O ●   ● O O O O

19. company area. Get your mask

    ? " , . !   1 2 3 4 5   19. 2,13
    O O ● O O   O O O O ●

20. web gear hood, and carrier!

    ? " . ' ,   1 2 3 4 5   20. 7,13
    O O O O ●   O ● O O O

Name_____

MODULE RECORD SHEET
PUNCTUATION

OBJECTIVE: Given any sentence, punctuate it properly according to the rules for punctuation.

SAMPLE TEST ITEMS:
1. Determine which punctuation mark has been left out of the following sentence:

	,	?	!	"	.

   a. "Watch out for the truck " he shouted.   O O ● O O

2. Count from the left to find the number of the word closest to the punctuation mark that has been left out.

1	2	3	4	5	6	7

   a. "Watch out for the truck " he shouted.   O O O O ● O O

INTRODUCTION TO PUNCTUATION

Punctuation marks are the "road signs" of sentences. They tell you where to slow down or stop. They also tell you which parts of the sentence belong together, and they help to make the sentence clearer. The activity sheets will tell you how to use punctuation in sentences. Work through all the activity sheets that have been circled below. You can check your own work using the Checklists your teacher has shown you. If you have any questions about punctuation, ask your teacher. When you are through with all the activity sheets and are sure you understand all the rules for punctuation, ask to take the Module Review.

ACTIVITY SHEETS (Do those that are circled)

1.	End Punctuation	1A	1B
2.	Commas in Series	2A	2B
3.	Commas: Appositives	3A	3B
4.	Commas: Direct Address	4A	4B
5.	Commas: Introductory Words and Parenthetical Expressions	5A	5B
6.	Commas: Dates and Addresses	6A	6B
7.	Commas: Phrases, Clauses, and Compound Sentences	7A	7B
8.	Commas: Quotes	8A	8B
9.	Quotations	9A	9B
10.	Apostrophes: Ownership	10A	10B
11.	Apostrophes: Contractions	11A	11B
12.	Abbreviations	12A	12B
13.	Punctuation Practice	13A	13B

MODULE REVIEW
PUNCTUATION

Instructions: Decide which punctuation mark (if any) is left out of each line. Mark it in the answer space to the right. Then count from the left and determine the number of the word closest to where the missing mark belongs. Mark your answer in the answer space to the right.

NOTE: Some lines are <u>not</u> numbered and are <u>not</u> items.

Example:	Missing Punctuation Mark					Closest Word Number				
	,	.	!	?	"	1	2	3	4	5
1. "What" asked SGT Thomas. "Did	O	O	O	●	O	●	O	O	O	O
I hear you say that										
	,	'	?	"	.	1	2	3	4	5
2. you dont have a helmet?"	O	●	O	O	O	O	●	O	O	O

	"	,	.	?	!	1	2	3	4	5
1. Last year I decided to	O	O	O	O	O	O	O	O	O	O
buy a new car. I										

	?	"	.	'	,	1	2	3	4	5
2. wanted one with five speeds	O	O	O	O	O	O	O	O	O	O

	?	"	.	'	,	1	2	3	4	5
3. mag wheels, and fuel injection	O	O	O	O	O	O	O	O	O	O
I found the car I										

	?	"	.	!	'	1	2	3	4	5
4. wanted but it cost too	O	O	O	O	O	O	O	O	O	O
much. So I went to										

	?	'	.	!	,	1	2	3	4	5
5. A.C.S and told the man	O	O	O	O	O	O	O	O	O	O

	?	"	.	!	'	1	2	3	4	5
6. there "I need a car	O	O	O	O	O	O	O	O	O	O

	.	?	"	'	,	1	2	3	4	5
7. loan sir." He said, "You	O	O	O	O	O	O	O	O	O	O
need to go to the										

	?	"	.	'	,	1	2	3	4	5
8. Federal Credit Union. Theyll help	O	O	O	O	O	O	O	O	O	O

	?	"	.	'	,	1	2	3	4	5
9. you." I drove my brothers	O	O	O	O	O	O	O	O	O	O
car to the Credit Union,										

	?	"	.	,	'	1	2	3	4	5
10. located at the Main PX	O	O	O	O	O	O	O	O	O	O

Module Review (Continued)
Punctuation

	Missing Punctuation Mark					Closest Word Number				

		?	"	,	.	!	1	2	3	4	5
11.	Fort Ord, California. May I	11. O	O	O	O	O	O	O	O	O	O
12.	help you" asked the woman	12. O	O	O	O	O	O	O	O	O	O
13.	there. "Yes please," I answered.	13. O	O	O	O	O	O	O	O	O	O
14.	"Id like to get a	14. O	O	O	O	O	O	O	O	O	O
15.	loan for a car a	15. O	O	O	O	O	O	O	O	O	O
16.	used one." "Well" she told	16. O	O	O	O	O	O	O	O	O	O
17.	me, you need to bring	17. O	O	O	O	O	O	O	O	O	O
18.	in a pay voucher and	18. O	O	O	O	O	O	O	O	O	O
	you must fill out these										
19.	forms" The car, a red	19. O	O	O	O	O	O	O	O	O	O
20.	1977 Scirocco is now mine.	20. O	O	O	O	O	O	O	O	O	O

Instructions: Decide which punctuation mark (if any) is left out of each line. Mark it in the answer space to the right. Then count from the left and determine the number of the word closest to where the missing mark belongs. Mark your answer in the answer space to the right.

NOTE: Some lines are not numbered and are not items.

Example:		Missing Punctuation Mark						Closest Word Number				
		,	.	!	?	"		1	2	3	4	5
1. "What" asked SGT Thomas. "Did		o	o	o	●	o		●	o	o	o	o
I hear you say that		,	'	?	"	.		1	2	3	4	5
2. you dont have a helmet?"		o	●	o	o	o		o	●	o	o	o

													IF WRONG, ASSIGN:
1. Last year I decided to	" o	, ●	. o	? o	! o		1 o	2 ●	3 o	4 o	5 o		1. 7,13
buy a new car. I													
2. wanted one with five speeds	? o	" o	. o	' o	, ●		1 o	2 o	3 o	4 o	5 ●		2. 2,13
3. mag wheels, and fuel injection	? o	" o	. ●	' o	, o		1 o	2 o	3 o	4 o	5 ●		3. 1,13
I found the car I													
4. wanted but it cost too	? o	" o	. ●	! o	' o		1 ●	2 o	3 o	4 o	5 o		4. 7,13
much. So I went to													
5. A.C.S and told the man	? o	' o	. ●	! o	, o		1 ●	2 o	3 o	4 o	5 o		5. 12,13
6. there "I need a car	? o	" o	. ●	! o	' o		1 ●	2 o	3 o	4 o	5 o		6. 8,13
7. loan sir." He said, "You	. o	? o	" o	' o	, ●		1 ●	2 o	3 o	4 o	5 o		7. 4,13
need to go to the													
8. Federal Credit Union. Theyll help	? o	" o	. o	' ●	, o		1 o	2 o	3 o	4 ●	5 o		8. 11,13
9. you." I drove my brothers	? o	" o	. o	' ●	, o		1 o	2 o	3 o	4 o	5 ●		9. 10,13
car to the Credit Union,													
10. located at the Main PX	? o	" o	. o	' ●	' o		1 o	2 o	3 o	4 o	5 ●		10. 6,13

		Missing Punctuation Mark					Closest Word Number					IF WRONG, ASSIGN:
		?	"	,	.	!	1	2	3	4	5	
11.	Fort Ord, California. May I	○	●	○	○	○	○	○	○	●	○	11. 9,13
		?	"	,	.	!	1	2	3	4	5	
12.	help you" asked the woman	●	○	○	○	○	○	●	○	○	○	12. 1,9,13
		?	"	,	'	;	1	2	3	4	5	
13.	there. "Yes please," I answered.	○	○	○	○	●	○	●	○	○	○	13. 5,13
		.	?	"	'	,	1	2	3	4	5	
14.	"Id like to get a	○	○	○	●	○	●	○	○	○	○	14. 11,13
		?	"	,	.	'	1	2	3	4	5	
15.	loan for a car a	○	○	●	○	○	○	○	○	●	○	15. 3,13
		?	"	,	.	!	1	2	3	4	5	
16.	used one." "Well" she told	○	○	●	○	○	○	○	●	○	○	16. 5,8,13
		?	"	,	.	!	1	2	3	4	5	
17.	me, you need to bring	○	●	○	○	○	○	●	○	○	○	17. 9,13
		?	"	.	'	,	1	2	3	4	5	
18.	in a pay voucher and	○	○	○	○	●	○	○	○	●	○	18. 7,13
	you must fill out these											
		"	,	.	?	!	1	2	3	4	5	
19.	forms" The car, a red	○	○	●	○	○	●	○	○	○	○	19. 1,13
		?	'	.	!	,	1	2	3	4	5	
20.	1977 Scirocco is now mine.	○	○	○	○	●	○	●	○	○	○	20. 3,13

When you write a sentence, you always have to end it with a <u>punctuation mark</u>. There are only three punctuation marks that you can use at the end of a sentence. They are the <u>period</u>, the <u>question mark</u>, and the <u>exclamation point</u>.

● A period is used at the end of a sentence that <u>tells</u> you something or <u>tells you to do</u> something. This is called a <u>declarative</u> sentence. You use periods more than you use question marks or exclamation points.

? A question mark is used at the end of a sentence that <u>asks a question</u>. This is the only time it is used.

! An exclamation point is used at the end of a sentence that <u>exclaims</u>. A sudden emotion like joy, fear, happiness, pain, or anger, is an exclamation. Another kind of exclamation is a sentence that talks about <u>sudden feeling</u> or <u>emphasizes</u> something. An exclamation point is used to make a sentence more important.

Here are samples of the three kinds of sentences:

"Declarative" sentence: It is raining today. We are
Use a period.   going on maneuvers.

Question. Use a   When will the rain stop?
question mark.   Should we wear our ponchos?

Exclamation. Use an   This must be a hurricane!
exclamation point.   Let's get out of here!

Instructions: Read the sentences below. Decide which punctuation mark each one needs; a period, a question mark, or an exclamation point. Then circle the correct punctuation mark to the right of the sentence.

		.	?	!
Example:	1. Is it Friday	.	(?)	!
	2. I need a new fatigue jacket	(.)	?	!
	3. Watch out	.	?	(!)

	.	?	!
1. What should you do if a soldier is bleeding	.	(?)	!
2. Check for more than one wound	(.)	?	!
3. Cut the clothing away from the wound	(.)	?	!

When you write a sentence, you always have to end it with a <u>punctuation mark</u>. There are only three punctuation marks that you can use at the end of a sentence. They are the <u>period</u>, the <u>question mark</u>, and the <u>exclamation point</u>.

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Instructions: Read the sentences below. Decide which punctuation mark each one needs; a period, a question mark, or an exclamation point. Then circle the correct punctuation mark to the right of the sentence.

Example: 1. Is it Friday   .   ⊘   !

            2. I need a new fatigue jacket   ⊙   ?   !

            3. Watch out   .   ?   ⊙

1. What should you do if a soldier is bleeding   .   ?   !

2. Check for more than one wound   .   ?   !

3. Cut the clothing away from the wound   .   ?   !

4.   Be careful   .   ?   !

5.   If you touch the wound, you could make it
     dirtier   .   ?   !

6.   Take a pressure dressing from the kit   .   ?   !

7.   How do you unwrap it   .   ?   !

8.   Twist it to break the paper wrapper   .   ?   !

9.   Don't get it dirty   .   ?   !

10. Put the clean side against the wound   .   ?   !

11. Which is the clean side   .   ?   !

12. It is the side that is white   .   ?   !

13. Tie the bandage onto the wound   .   ?   !

14, Is he still bleeding   .   ?   !

15. He might bleed to death   .   ?   !

16. Press on the top of the bandage with your hand   .   ?   !

17. Keep pressing for 5-10 minutes   .   ?   !

18. You can also tie a thick pad over the bandage   .   ?   !

19. What else should I do   .   ?   !

20. Elevate the wounded part   .   ?   !

21. Use digital pressure   .   ?   !

22. Don't ever use that tourniquet unless you
     really need to   .   ?   !

Name_____

Commas tell you to <u>pause</u> when you are reading a sentence. They set off words or groups of words and help to make the sentence clear. One way to use commas is to separate words in a <u>series</u>. When you have a list of things in a sentence, you separate the things in the list by using commas.

For instance, if you read this sentence:

The soldiers were issued ammo clips web belts and helmet liners.

Can you tell how many things were issued to the soldiers?

But if you put in commas, the sentence is clear:

The soldiers were issued ammo clips, web belts, and helmet liners.

Instructions: The sentences below are written in short lines. They need commas to set off things in a series. Decide where the commas go. Then count from the left of each line and write down the number of each word that needs a comma after it. Write the numbers on the short line to the right. Be careful! Some of the lines don't need commas. If a line doesn't need a comma, write "none" in the answer blank.

Example: A first aid kit has a case dressing   7, 8
          burn mixture and an envelope cover   2

1. Four ways to stop bleeding are to use a pressure bandage   1. _____
   use digital pressure elevate the wound and use a   _____
   tourniquet.   _____

2. You need to unwrap the bandage put it on the wound   2. _____
   wrap it around and tie it in place.   _____

3. You can use a rock log helmet or boots to elevate   3. _____
   the limb.   _____

4. Don't elevate a broken arm or leg because it can cause   4. _____
   pain increase shock or damage nerves.   _____

5. Some digital pressure points are in the wrist elbow   5. _____
   shoulder upper arm and neck.   _____

6. Don't use a tourniquet unless you already tried direct   6. _____
   pressure elevation and digital pressure.   _____

An **appositive** is a word or a group of words that tells you more about something in a sentence. It makes you "more positive" of what the sentence is talking about. If you read the words:

SP4 SMITH IS ON LEAVE.

You might not really know who is on leave. There are a lot of SP4 Smiths in the Army. But if you read,

SP4 SMITH, OUR SQUAD LEADER, IS ON LEAVE.

then you are more **positive** about who the sentence is talking about.

You use commas to set off an appositive. Use a comma between the appositive and the rest of the sentence. If the appositive comes in the middle of the sentence, you use one comma in front of it and another comma after it.

Instructions: Read the sentences below. They are written in short lines. Look for the appositives. When you find one, decide where the commas go. Then count from the beginning of each line and write down the numbers of any words that need commas after them. Be Careful! Some of the sentences might not have an appositive.

Example: This weapon a LAW can be used against tanks. ___2, 4___

---

1. The LAW a one-man weapon should be checked before you   1._____
    fire it.

2. Pull out the pull pin a s ll pin with a ring.   2._____

3. Rotate the rear cover a cap over the end downward.   3._____

4. The sling assembly for carrying the launcher will   4._____
    fall free.

5. Pull sharply backward on the rear sight cover a box over 5._____
    the rear sight to extend the launcher.   _____

6. Try to push it back together to check that it is locked. 6._____

7. Put the launcher a tube about 3 feet long on your   7._____
    shoulder.

8. Check and clear the backblast area the area behind you.   8._____

9. Move the safety handle to ARM.   9._____

10. Keep it pointed down range the direction of the enemy   10._____
    while it is on your shoulder.

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When you talk to people in a sentence, you use commas to set off their names. If the name or the title of the person comes in the middle of the sentence, you need to put a comma in front of it and another comma after it.

Instructions: Read the sentences below. When a sentence talks to someone, figure out where the commas should go. Then count from the left and write down the numbers of any words that need commas after them.

Example:

"What time is the formation SGT Johnson?"   ____5____

1. "All right men here's what we're going to do today.   _____

2. Rodriguez you go down to supply and get some paint.   _____

3. The brushes Collins are in the storeroom.   _____

4. Smith and Brubaker you start policing the area.   _____

5. It's up to you Washington to mow the grass.   _____

6. You two Thomas and Avila help paint the rocks
    by the path.   _____

7. Jones and Simmons you trim the trees.   _____

8. The bushes by the north door are your problem Paige. _____

9. Franklin you pull weeds and rake up the grass.   _____

10. You come with me to headquarters Tafua and we'll
    get those new signposts."   _____

Punctuation
Activity Sheet 5A
Commas: Introductory Words and
            Parenthetical Expressions   Name_____

> Commas are used to set off words that don't really relate to the rest of
> the sentence. These can be introductory words like "now"or "oh" or "yes".
> They can also be <u>parenthetical expressions</u> or extra thoughts of the writer's,
> like "in my opinion" or "I think". These words don't really make much difference
> in the sentence. They are just extra words, so you set them off with commas.

Instructions: Read the lines below. If you find any introductory words or
parenthetical expressions, they will need commas. Count from the left of
each line and write the number of each word that needs a comma after it.
Write the numbers on the answer spaces to the right. Be careful! Some lines
don't have an answer space next to them. There aren't any commas missing in
these lines.

   Example:

      Actually the M17A1 mask is a very   ____1____

      important piece of equipment. You

      need to check it I think every time   __4, 6____

      you go on maneuvers.

      You have nine seconds I believe   _____

      to put on your mask. First you   _____

      hold your breath. No don't drop   _____

      your helmet. Hold it between your

      knees I think. Your mask carrier   _____

      the book says should be opened with   _____

      your left hand. Take the mask out   _____

      of course with your right hand. Next   _____

      slide your thumbs up inside the mask

      to open it. After that you put your   _____

      chin in the chin pocket and pull the

      head harness over your head. Seal

      and clear the mask of course and check   _____

      for leaks. Yes it's an easy task if   _____

      you practice.

Use commas when you write a date or an address that has more than one part. How do you tell if it has more than one part? Here are the parts of a date:

Examples:

The day	The date	The year
Tuesday	May 10	1969
Friday	March 23	1982

If you use any of these parts alone, you don't need to use commas. But, if you use two or more parts, you need to put a comma after _every_ part. For instance, look at this sentence:

> The message I sent on Monday was lost.

You don't need commas around the date because the sentence uses only one part of a date. But in this sentence

> The message I sent on Monday, April 5, was lost.

You need commas after every part of the date.

The same rule is used for addresses. Here are some parts of addresses.

Street Name and Number	The Apt. Number	The Town	The State & Zip Code
708 Lexington Avenue	Apartment #3	Monterey	California 93940

If you use just one part, like this,

> "He moved to 708 Lexington Avenue last weekend."

You can see you don't need any commas after the address. But in this sentence --

> "He moved to 708 Lexington Avenue, Apartment 3, Monterey, California, last weekend."

You need commas after every address part.

Punctuation
Activity Sheet 6A
Commas: Dates and Addresses   Name_____
continued

     Instructions: Read the lines below. You will find some places where you
need commas. Count from the beginning of the line and write down the number
of any word that should have a comma after it. Write the numbers on the
answer spaces to the right. Be careful! Some of the lines don't need any
commas. If you find a line like that, write "none" on the answer space.

     Example:

          I moved from 1177 Front Street Jackson Mississippi   6,7,8
          to Fort Ord this year. It was on February 5 1982   10,11

          that the moving van came. I got here on the next   none

          Friday in the afternoon.   none

          On June 3 1980 I graduated   _____
          from high school. I went to   _____
          school at Pueblo High 1452   _____
          Diamond Drive Los Alamos New Mexico   _____
          87544. I decided to go into   _____
          the Army, so on June 15 I went   _____
          to the recruiting station. It is   _____
          at 11 Pajaro Street Santa Fe New Mexico.   _____
          After I joined the Army, I trained at   _____
          Fort Riley Kansas. Then on January   _____
          6 1982 I was transferred to   _____
          Fort Ord for more training. This year,   _____
          I will go to Kaiserslautern   _____
          Germany. I am supposed   _____
          to arrive there on September 14.   _____ ___

A comma is a road sign in a sentence. It tells you to slow down or pause. An easy way to tell where you should put the commas in a sentence is to say the sentence out loud. You can feel the pauses.

Commas separate the parts of a sentence. They separate phrases or clauses, and they separate the parts of a compound sentence. A compound sentence is one that is made out of two smaller sentences. It needs a comma to separate the ideas.

Look at these sentences. Each one needs a comma for a different reason.

1. When PVT Herrera finished shooting, his sergeant praised him.

> You need a comma here after the introductory clause.
> You can feel the pause. If you did not have a pause,
> it would sound like PVT Herrera was shooting his
> sergeant!

2. Expecting a bad storm, we all took our raincoats.

> In this sentence, the first phrase explains the second
> part. You can feel the pause. You put a comma after
> an introductory phrase that explains the rest of the
> sentence.

3. We ran all the way to the parade ground, but First Platoon got there before we did.

> This is really two short sentences. They are linked
> together by the word "but". You need a comma to
> separate the two short sentences. You can feel
> the pause.

Instructions: Read the sentences on the next page. Say them to yourself and feel the pauses. You will need to put commas after introductory phrases and clauses. You will also need them between the two halves of a compound sentence. When you find a place that needs a comma, count from the beginning of the line. Find the number of the word that needs a comma after it. Put the number in the answer space to the right.

Punctuation
Activity Sheet 7A
Commas: Phrases, Clauses, and
        Compound Sentences   Name_____
Continued

1. When you are firing the LAW you have to meet the standards.   _____

2. You will need to fire at stationary targets and you will need
    to fire at moving targets.   _____

3. Of three rockets fired at stationary targets two must hit
    the target.   _____

4. Of four rockets fired at moving targets two must hit
    the target.   _____

5. There are two sights and both sights flip up.   _____

6. The rear sight is a peepsight but the front sight is
    a clear plastic leaf.   _____

7. Even though there are stadia lines on the front sight you
    should not use them.   _____

8. Because they are not accurate they are no longer used.   _____

9. When you are sighting on stationary targets place the correct
    range cross on the center of the target.   _____

10. For slow moving targets put the correct lead cross on the
    center of mass.   _____

11. Targets moving at 5 MPH or less are slow and targets moving
    at more than 5 MPH are fast.   _____

12. For slow targets the lead cross is on the center of mass.   _____

13. For fast targets the lead cross is on the front edge of
    the target.   _____

14. An oblique target may move faster than 5 MPH but you
    aim as if it were a slow target.   _____

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Name_____

When you write down exactly what someone has said, that is called a quote. You use a comma after the phrase that introduces a quote. You also use commas if you interrupt the quote with any kind of phrase.

Instructions: Read the sentences below and decide where the commas go. Count from the beginning of each line and write down the number of each word that should have a comma after it. Write your answers in the answer spaces.

Examples:

1. "That" he said "is an M16A1 rifle."   __1, 3__

2. The soldier asked "Where are the spare ammo clips?"
                                                              __3__

1. The squad leader asked "What are the four lifesaving measures?" _____

2. "Well" said PVT Williams "the first one is to open the airway." _____

3. SP4 Samoa said "That's not quite right."   _____

4. "You must also" he said "restore the breathing and heartbeat." _____

5. "Okay" said SGT Perez "now what are the other three steps?" _____

6. PVT Tarpey said "The second one is to stop the bleeding." _____

7. "Right" added PVT Donaldson "and then you prevent shock." _____

8. "The last lifesaving measure" said SP4 Figueroa "is to dress
    and bandage the wound."   _____

9. The squad leader asked him "Why do you do that?"   _____

10. Figueroa answered "To avoid infection."   _____

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When you write down what a person said, that is called a quote or a quotation. There are two kinds of quotes. The first is called the indirect quotation. It tells what a person said without using his or her exact words. The second kind is called a direct quotation. It uses the exact words that the person said.

Here are samples of the two kinds of quotes:

1. The sergeant told four men to police up the company area.

   This is an indirect quotation. It tells you what the sergeant said without using his exact words.

2. The sergeant said, "You four men police up the company area."

   This a direct quotation. It tells you the exact words the sergeant said.

When you write a direct quotation, you need to use quotation marks. Use them at the beginning and the end of a quotation. You also need to use them if the quote is interrupted or broken in two parts. They set off the exact words somebody said from the rest of the sentence.

Here are some rules about quotations and quotation marks.

1. Always start a direct quotation with a capital letter.
   Example: Danny said, "Let's go down to the snack bar."

2. If a quote is interrupted in the middle of a sentence, don't start the second part with a capital letter.
   Example: "Hurry up," said Danny, "we don't have much time."

3. Always put commas or periods inside closing quotation marks. If the quotation is a question or an exclamation, then you put the question mark or exclamation point inside the quotation marks. Otherwise, it goes outside.
   Example: "Okay," said Tom, "I'm coming."

           "Watch out for the truck!" yelled Danny.

           Did you hear the truck driver say, "I'm sorry"?

4. If a direct quote is more than one sentence long, you only have to put quotation marks at the very beginning and the very end.
   Example: He said, "I'm sorry I almost backed into you. I didn't
            look in my rear view mirror."

Instructions: Read the sentences below. Put the quotation marks where they belong. If you see a capital letter that should be a small letter, cross it out and put a small letter above it. If you see a small letter that should be a capital, cross it out and put the capital letter above it.

Example: "Well," said SGT Johnson, "the SQT is next week."

Okay, said SGT Ames, You're going to learn how to aim the LAW. He showed us a picture of the front sight, and said, the curved lines are called stadia lines. They're not accurate, so don't use them. When PVT Williams heard SGT Ames say that, he looked closely at the sight. PVT Williams asked, what are the cross marks on the edges of the sight? SGT Ames saw where PVT Williams was pointing. He could see the cross marks clearly. They are lead crosses, said SGT Ames, and they help you apply lead to a moving target. SGT Ames picked up a piece of chalk so he could write on the blackboard. He said, first, you figure your range. Then, you put the correct range line on the target. He drew a great big picture of a LAW sight and a big picture of a tank on the board. PVT Ruiz watched him. Where do we aim? asked PVT Ruiz. SGT Ames pointed at the picture of the tank. Usually the center of mass, he said. On a stationary target, he continued, You put the range line on the center of mass. PVT Soames raised his hand. What do you do, asked PVT Soames, If the target is moving? SGT Ames made two little cross marks on the picture of the tank. If it is a slow target, said Ames, You put the lead cross on the center of mass. But if it is a fast target, you put the lead cross on the front edge. SGT Ames put down his chalk. Are there any other questions? he asked.

Apostrophes are used to show <u>ownership</u> or <u>possession</u>. They are
used with nouns or pronouns.

There are two ways to use apostrophes with nouns (that is, names of things).

1. If the noun talks about <u>one</u> person or thing, you make it
    <u>possessive</u> by adding 's.

    the rifle belonging to the soldier = the soldier's rifle
    the tail belonging to the dog = the dog's tail
    the car belonging to Ron = Ron's car

2a. If the noun talks about <u>more than one</u> person or thing, and it ends
    in s, you just stick an apostrophe on the end.

    the rifles belonging to the soldiers = the soldiers' rifles
    the tails belonging to the dogs = the dogs' tails

2b. If the noun talks about <u>more than one</u> person or thing, and it
    <u>doesn't</u> end in s, you put an 's on the end.

    the helmets of the men = the men's helmets
    the toys of the children = the children's toys

When you use pronouns, some of them are <u>already</u> possessive. They do not
need an apostrophe. These pronouns are:

<u>his</u>, <u>hers</u>, <u>its</u>, <u>ours</u>, <u>theirs</u>, <u>yours</u>, and <u>whose</u>.

For other pronouns you need to add <u>'s</u>.

<u>His</u> is better than <u>ours</u>. (Doesn't need apostrophes)

Everyone's leave was cancelled. (needs 's.)
Nobody's equipment was lost.(needs 's).

Instructions: Read the sentences below. Put a line under every word that
should show ownership. Then put what you would do to it in the answer space
to the right. If you need to add an apostrophe, write ' in the blank. If you
need to add an apostrophe and an s write 's in the blank. And if the word
doesn't need to be changed, write <u>nothing</u> in the blank.

Examples: <u>Jim</u> mask has a broken lens.   ___'s___

           The <u>officers</u> houses are being painted.   ___'___

           Is this hat <u>yours</u>?   _nothing_

1. SGT Polk platoon went to the field.   _____

2. His men were practicing for their SQT.   _____

3. SP4 Riley squad practiced with grenades.   _____

4. The men grenade launchers need to be cleaned.   _____

5. All the hand grenades pins were bent.   _____

6. It is everyone job to keep the equipment clean.   _____

7. Several soldiers grenade launchers misfired.   _____

8. SP4 Riley men did well at throwing the hand grenades. _____

9. SGT Polk showed them a grenade launcher barrel.   _____

10. Its edge was bent and a shell would not fit into it.   _____

11. He warned the men to keep their equipment in good
    condition.   _____

> Contractions are two words that have been made into one word. They are easy to learn. Just put an apostrophe wherever you take out letters.
>
> Here are some examples of contractions:
>
>   can not = can't   ⌐
>   do not = don't
>   he will = he'll
>
> You can see that the apostrophe takes the place of the letters that have been left out.
>
> Contractions are easy, but you have to be careful with them. For instance, <u>its</u> is the possessive form of <u>it.</u> But <u>it's</u> means it <u>is</u>. Don't get them confused. Here are some words that look the same when they are possessives or contractions:
>
>   John's going - John is going (contraction)
>   John's hat = the hat belonging to John (possessive)
>
>   The soldier's on duty - the soldier is on duty (contraction)
>   The soldier's rifle = the rifle belonging to the soldier (possessive)

Instructions: Read the words below. For the first ten, decide what two words were used to make the contraction. Then write the two words in the answer space. For the second ten, look at the two words. Then make a contraction and write it in the answer space.

Examples: we're   <u>we are</u>
             she will   <u>she'll</u>

1. isn't   _____   11. we have   _____

2. he's   _____   12. Jim is   _____

3. they're   _____   13. they had   _____

4. weren't   _____   14. do not   _____

5. let's   _____   15. he would   _____

6. who's   _____   16. did not   _____

7. we'll   _____   17. it is   _____

8. can't   _____   18. I shall   _____

9. you're   _____   19. must not   _____

10. doesn't   _____   20. would not   _____

Abbreviations are words or phrases that are shortened. Sometimes abbreviations are two or three letters long, or even longer. Sometimes they are only one letter.

When an abbreviation is only one letter long it is called an <u>initial</u>. This is because it is the first (or initial) letter of a word. Sometimes, an abbreviation is three or four initials in a row.

You need to put a period after every abbreviation and after every initial. If an abbreviation is two or more initials in a row, you need to put a period after every one.

Instructions: Here is a list of abbreviations and what they stand for. Put in the periods where they belong.

Example: street = st.
           senior = sr.
           United States Marine Corps = U.S.M.C.

1. advertisement = ad

2. anonymous = anon

3. attorney = atty

4. avenue = ave

5. Bachelor of Arts = B A

6. boulevard = blvd

7. Cash on Delivery = C O D

8. column = col

9. dozen = doz

10. Doctor = Dr

11. department = dept

12. et cetera (and so forth) = etc

13. foot = ft

14. inch = in

15. light = lt

16. Master of Ceremonies = M C

17. Medical Doctor = M D

18. Military Police = M P

19. Mister = Mr

20. Mistress = Mrs

21. number = no

22. ounce = oz

23. paid = pd

24. Police Department = P D

25. post meridian (afternoon) = p m

26. quart = qt

27. Reverend = Rev

28. senior = Sr

29. street = st

30. Saint = St

31. United States of America = U S A

On this page, you can practice what you have learned about punctuation. The kinds of punctuation you need to know in order to work this page are:

    End punctuation   Apostrophes
    Commas   Punctuating Abbreviations
    Quotation Marks

You have learned all these kinds of punctuation on the Activity Sheets you did. So this page will be easy to figure out.

Instructions: Decide which punctuation mark (if any) is left out of each line. Mark it in the answer space to the right. Then count from the left and determine the number of the word closest to where the missing mark belongs. Mark your answer in the answer space to the right.
    NOTE: Some lines are _not_ numbered and are _not_ items.

Example:

	?	.	,	"	!	1	2	3	4	5
1. "Why do you think " asked	O	O	●	O	O	O	O	O	●	O
SGT Murphy, "that they are	?	.	,	"	!	1	2	3	4	5
2. called the four lifesaving methods?	O	O	O	●	O	O	O	O	O	●

	?	.	,	'	"	1	2	3	4	5
1. SGT Murphy said, "On Tuesday	O	O	O	O	O	O	O	O	O	O
May 12, you have your										
2. SQT " He looked right at	O	O	O	O	O	O	O	O	O	O
3. me and said, "Lets see	O	O	O	O	O	O	O	O	O	O
4. if SP4 Wilsons squad can	O	O	O	O	O	O	O	O	O	O
tell us how to control										
5. bleeding." "Well, I started, "my	O	O	O	O	O	O	O	O	O	O
6. men studied that sir, so	O	O	O	O	O	O	O	O	O	O

	?	!	,	'	"	1	2	3	4	5
7. were ready." PVT Riley said,	O	O	O	O	O	O	O	O	O	O

	.	"	,	'	?	1	2	3	4	5
8. The first method is to	O	O	O	O	O	O	O	O	O	O
9. apply a pressure dressing." Right,"	O	O	O	O	O	O	O	O	O	O
10. I told him "Now, can	O	O	O	O	O	O	O	O	O	O
you tell the sergeant what										

	.	"	,	!	?	1	2	3	4	5
11. the second method is PVT	O	O	O	O	O	O	O	O	O	O
12. Riley " He said, "It is,	O	O	O	O	O	O	O	O	O	O
13. I think to elevate the	O	O	O	O	O	O	O	O	O	O

Name_____

	Missing Punctuation Mark					Closest Word Number				
	.	"	,	!	?	1	2	3	4	5
14. wounded part. "Good," I said.	O	O	O	O	O	O	O	O	O	O
15. "What is the third method	.	"	,	!	?	1	2	3	4	5
	O	O	O	O	O	O	O	O	O	O
16. PVT Lee " "Use digital pressure,"	.	"	,	!	?	1	2	3	4	5
	O	O	O	O	O	O	O	O	O	O
17. he said without delay. "Now	.	?	,	'	!	1	2	3	4	5
	O	O	O	O	O	O	O	O	O	O
18. PVT Lee," I asked, can	.	?	"	,	!	1	2	3	4	5
	O	O	O	O	O	O	O	O	O	O
you give me the fourth										
19. method?" He said, "Its to	.	?	"	,	'	1	2	3	4	5
	O	O	O	O	O	O	O	O	O	O
20. use a tourniquet. But, he	.	?	"	,	'	1	2	3	4	5
	O	O	O	O	O	O	O	O	O	O
21. added, "you dont use the	.	?	"	,	'	1	2	3	4	5
	O	O	O	O	O	O	O	O	O	O
tourniquet unless the first three										
22. methods don't work do you?"	.	?	"	,	'	1	2	3	4	5
	O	O	O	O	O	O	O	O	O	O
23. "Right," I said. And why	.	?	"	!	'	1	2	3	4	5
	O	O	O	O	O	O	O	O	O	O
24. not " "Because," said Lee, "the	.	?	"	!	'	1	2	3	4	5
	O	O	O	O	O	O	O	O	O	O
tourniquet can damage blood vessels										
25. and nerves." "Great " exclaimed SGT	.	?	"	!	'	1	2	3	4	5
	O	O	O	O	O	O	O	O	O	O
26. Murphy. You men really know	.	?	"	!	'	1	2	3	4	5
	O	O	O	O	O	O	O	O	O	O
27. your stuff. Now lets see	.	?	"	,	'	1	2	3	4	5
	O	O	O	O	O	O	O	O	O	O
what the rest of the										
platoon knows."										

Name _____

4.   Be careful   .   ? (!)

5.   If you touch the wound, you could make it dirtier   (.) ? !

6.   Take a pressure dressing from the kit   (.) ? !

7.   How do you unwrap it   . (?) !

8.   Twist it to break the paper wrapper   (.) ? !

9.   Don't get it dirty   . ? (!)

10.   Put the clean side against the wound   (.) ? !

11.   Which is the clean side   . (?) !

12.   It is the side that is white   (.) ? !

13.   Tie the bandage onto the wound   (.) ? !

14.   Is he still bleeding   . (?) !

15.   He might bleed to death   . ? (!)

16.   Press on the top of the bandage with your hand   (.) ? !

17.   Keep pressing for 5-10 minutes   (.) ? !

18.   You can also tie a thick pad over the bandage   (.) ? !

19.   What else should I do   . (?) !

20.   Elevate the wounded part   (.) ? !

21.   Use digital pressure   (.) ? !

22.   Don't ever use that tourniquet unless you really need to   . ? (!)

Commas tell you to <u>pause</u> when you are reading a sentence. They set off
words or groups of words and help to make the sentence clear. One way to use
commas is to separate words in a <u>series</u>. When you have a list of things in
a sentence, you separate the things in the list by using commas.

For instance, if you read this sentence:

The soldiers were issued ammo clips web belts and helmet liners.

Can you tell how many things were issued to the soldiers?

But if you put in commas, the sentence is clear:

The soldiers were issued ammo clips, web belts, and helmet liners.

Instructions: The sentences below are written in short lines. They need
commas to set off things in a series. Decide where the commas go. Then count
from the left of each line and write down the number of each word that needs
a comma after it. Write the numbers on the short line to the right. Be careful!
Some of the lines don't need commas. If a line doesn't need a comma, write
"none" in the answer blank.

Example:	A first aid kit has a case dressing	7, 8
	burn mixture and an envelope cover	2

1. Four ways to stop bleeding are to use a pressure bandage   1. ____11____
   use digital pressure elevate the wound and use a   ___3, 6___
   tourniquet.   ___none___

2. You need to unwrap the bandage put it on the wound   2. ___6, 11___
   wrap it around and tie it in place.   ___3___

3. You can use a rock log helmet or boots to elevate   3. ___5, 6, 7___
   the limb.   ___none___

4. Don't elevate a broken arm or leg because it can cause   4. ___none___
   pain increase shock or damage nerves.   ___1, 3___

5. Some digital pressure points are in the wrist elbow   5. ___8, 9___
   shoulder upper arm and neck.   ___1, 3___

6. Don't use a tourniquet unless you already tried direct   6. ___none___
   pressure elevation and digital pressure.   ___1, 2___

An <u>appositive</u> is a word or a group of words that tells you more about something in a sentence. It makes you "more positive" of what the sentence is talking about. If you read the words:

SP4 SMITH IS ON LEAVE.

You might not really know who is on leave. There are a lot of SP4 Smiths in the Army. But if you read,

SP4 SMITH, OUR SQUAD LEADER, IS ON LEAVE.

then you are more <u>positive</u> about who the sentence is talking about.

You use commas to set off an appositive. Use a comma between the appositive and the rest of the sentence. If the appositive comes in the middle of the sentence, you use one comma in front of it and another comma after it.

Instructions: Read the sentences below. They are written in short lines. Look for the appositives. When you find one, decide where the commas go. Then count from the beginning of each line and write down the numbers of any words that need commas after them. Be Careful! Some of the sentences might not have an appositive.

Example: This weapon a LAW can be used against tanks.   __2, 4__

---

1.   The LAW a one-man weapon should be checked before you   1. ___2, 6___
     fire it.

2.   Pull out the pull pin a small pin with a ring.   2. ____5____

3.   Rotate the rear cover a cap over the end downward.   3. ___4,9___

4.   The sling assembly for carrying the launcher will   4. ___none___
     fall free.

5.   Pull sharply backward on the rear sight cover a box over 5. ____8____
     the rear sight to extend the launcher.   ____3____

6.   Try to push it back together to check that it is locked. 6. ___none___

7.   Put the launcher a tube about 3 feet long on your   7. ___3, 9___
     shoulder.

8.   Check and clear the backblast area the area behind you. 8. ____6____

9.   Move the safety handle to ARM.   9. ___none___

10. Keep it pointed down range the direction of the enemy   10. __5, 10__
     while it is on your shoulder.

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Name_____

When you talk to people in a sentence, you use commas to set off their names. If the name or the title of the person comes in the middle of the sentence, you need to put a comma in front of it and another comma after it.

Instructions: Read the sentences below. When a sentence talks to someone, figure out where the commas should go. Then count from the left and write down the numbers of any words that need commas after them.

Example:

"What time is the formation SGT Johnson?" _____5_____

1. "All right men here's what we're going to do today. ___2, 3___

2. Rodriguez you go down to supply and get some paint. ___1___

3. The brushes Collins are in the storeroom. ___2, 3___

4. Smith and Brubaker you start policing the area. ___3___

5. It's up to you Washington to mow the grass. ___4, 5___

6. You two Thomas and Avila help paint the rocks
   by the path. ___2, 5___

7. Jones and Simmons you trim the trees. ___3___

8. The bushes by the north door are you problem Paige. ___9___

9. Franklin you pull weeds and rake up the grass. ___1___

10. You come with me to headquarters Tafua and we'll
    get those new signposts." ___6, 7___

Commas are used to set off words that don't really relate to the rest of the sentence. These can be introductory words like "now"or "oh" or "yes". They can also be <u>parenthetical expressions</u> or extra thoughts of the writer's, like "in my opinion" or "I think". These words don't really make much difference in the sentence. They are just extra words, so you set them off with commas.

Instructions: Read the lines below. If you find any introductory words or parenthetical expressions, they will need commas. Count from the left of each line and write the number of each word that needs a comma after it. Write the numbers on the answer spaces to the right. Be careful! Some lines don't have an answer space next to them. There aren't any commas missing in these lines.

Example:

Actually the M17A1 mask is a very	1
important piece of equipment. You	
need to check it I think every time	4, 6
you go on maneuvers.	

You have nine seconds I believe	4, 6
to put on your mask. First you	6
hold your breath. No don't drop	4
your helmet. Hold it between your	
knees I think. Your mask carrier	1, 6
the book says should be opened with	3
your left hand. Take the mask out	7
of course with your right hand. Next	2, 7
slide your thumbs up inside the mask	
to open it. After that you put your	5
chin in the chin pocket and pull the	
head harness over your head. Seal	
and clear the mask of course and check	4, 6
for leaks. Yes it's an easy task if	3
you practice.	

Instructions: Read the lines below. You will find some places where you
need commas. Count from the beginning of the line and write down the number
of any word that should have a comma after it. Write the numbers on the
answer spaces to the right. Be careful! Some of the lines don't need any
commas. If you find a line like that, write "none" on the answer space.

Example:

I moved from 1177 Front Street Jackson Mississippi	6,7,8
to Fort Ord this year. It was on February 5 1982	10,11
that the moving van came. I got here on the next	none
Friday in the afternoon.	none

On June 3 1980 I graduated	3, 4
from high school. I went to	none
school at Pueblo High 1452	4
Diamond Drive Los Alamos New Mexico	2, 4
87544. I decided to go into	none
the Army, so on June 15 I went	none
to the recruiting station. It is	none
at 11 Pajaro Street Santa Fe New Mexico.	4, 6
After I joined the Army, I trained at	none
Fort Riley Kansas. Then on January	2
6 1982 I was transferred to	1, 2
Fort Ord for more training. This year,	none
I will go to Kaiserslautern	5
Germany. I am supposed	none
to arrive there on September 14.	none

CHECK SHEET
Punctuation
Activity Sheet 7A
Commas: Phrases, Clauses, and
          Compound Sentences   Name_____
Continued

1. When you are firing the LAW you have to meet the standards.   1.____6_____

2. You will need to fire at stationary targets and you will need
    to fire at moving targets.   2.____8_____

3. Of three rockets fired at stationary targets two must hit
    the target.   3.____7_____

4. Of four rockets fired at moving targets two must hit
    the target.   4.____7_____

5. There are two sights and both sights flip up.   5.____4_____

6. The rear sight is a peepsight but the front sight is
    a clear plastic leaf.   6.____6_____

7. Even though there are stadia lines on the front sight you
    should not use them.   7.___10_____

8. Because they are not accurate they are no longer used.   8.____5_____

9. When you are sighting on stationary targets place the correct
    range cross on the center of the target.   9.____7_____

10. For slow moving targets put the correct lead cross on the
    center of mass.   10.____4_____

11. Targets moving at 5 MPH or less are slow and targets moving
    at more than 5 MPH are fast.   11.____9_____

12. For slow targets the lead cross is on the center of mass.   12.____3_____

13. For fast targets the lead cross is on the front edge of
    the target.   13.____3_____

14. An oblique target may move faster than 5 MPH but you
    aim as if it were a slow target.   14.____9_____

Name_____

When you write down exactly what someone has said, that is called a quote. You use a comma after the phrase that introduces a quote. You also use commas if you interrupt the quote with any kind of phrase.

Instructions: Read the sentences below and decide where the commas go. Count from the beginning of each line and write down the number of each word that should have a comma after it. Write your answers in the answer spaces.

Examples:

1. "That" he said "is an M16A1 rifle."   1, 3

2. The soldier asked "Where are the spare ammo clips?"
                                                            3

1. The squad leader asked "What are the four lifesaving measures?"   4

2. "Well" said PVT Williams "the first one is to open the airway."   1, 4

3. SP4 Samoa said "That's not quite right."   3

4. "You must also" he said "restore the breathing and heartbeat."   3, 5

5. "Okay" said SGT Perez "now what are the other three steps?"   1, 4

6. PVT Tarpey said "The second one is to stop the bleeding."   3

7. "Right" added PVT Donaldson "and then you prevent shock."   1, 4

8. "The last lifesaving measure" said SP4 Figueroa "is to dress and bandage the wound."   4, 7

9. The squad leader asked him "Why do you do that?"   5

10. Figueroa answered "To avoid infection."   2

Instructions: Read the sentences below. Put the quotation marks where
they belong. If you see a capital letter that should be a small letter, cross
it out and put a small letter above it. If you see a small letter that should
be a capital, cross it out and put the capital letter above it.
Example: "Well," said SGT Johnson, "the SQT is next week."

"Okay," said SGT Ames, "You're going to learn how to aim the LAW." He showed us
a picture of the front sight, and said, "The curved lines are called stadia lines.
They're not accurate, so don't use them." When PVT Williams heard SGT Ames say
that, he looked closely at the sight. PVT Williams asked, "What are the cross
marks on the edges of the sight?" SGT Ames saw where PVT Williams was pointing.
He could see the cross marks clearly. "They are lead crosses," said SGT Ames,
"and they help you apply lead to a moving target." SGT Ames picked up a piece
of chalk so he could write on the blackboard. He said, "First, you figure your
range. Then, you put the correct range line on the target." He drew a great big
picture of a LAW sight and a big picture of a tank on the board. PVT Ruiz
watched him. "Where do we aim?" asked PVT Ruiz. SGT Ames pointed at the picture
of the tank. "Usually the center of mass," he said. "On a stationary target," he
continued, "You put the range line on the center of mass." PVT Soames raised his
hand. "What do you do," asked PVT Soames, "if the target is moving?" SGT Ames
made two little cross marks on the picture of the tank. "If it is a slow target,"
said Ames, "You put the lead cross on the center of mass. But if it is a fast
target, you put the lead cross on the front edge." SGT Ames put down his chalk.
"Are there any other questions?" he asked.

1. SGT <u>Polk</u> platoon went to the field.   ____'s____

2, His men were practicing for <u>their</u> SQT.   ____nothing____

3. SP4 <u>Riley</u> squad practiced with grenades.   ____'s____

4. The <u>men</u> grenade launchers need to be cleaned.   ____'s____

5. All the hand <u>grenades</u> pins were bent.   ____'____

6. It is <u>everyone</u> job to keep the equipment clean.   ____'s____

7. Several <u>soldiers</u> grenade launchers misfired.   ____'____

8. SP4 <u>Riley</u> men did well at throwing the hand grenades.   ____'s____

9. SGT Polk showed them a grenade <u>launcher</u> barrel.   ____'s____

10. <u>Its</u> edge was bent and a shell would not fit into it.   ____nothing____

11. He warned the men to keep <u>their</u> equipment in good
     condition.   ____nothing____

Contractions are two words that have been made into one word. They are easy to learn. Just put an apostrophe wherever you take out letters.

Here are some examples of contractions:

        can not = can't
        do not = don't
        he will = he'll

You can see that the apostrophe takes the place of the letters that have been left out.

Contractions are easy, but you have to be careful with them. For instance, its is the possessive form of it. But it's means it is. Don't get them confused. Here are some words that look the same when they are possessives or contractions:

        John's going - John is going (contraction)
        John's hat = the hat belonging to John (possessive)

        The soldier's on duty - the soldier is on duty (contraction)
        The soldier's rifle = the rifle belonging to the soldier (possessive)

Instructions: Read the words below. For the first ten, decide what two words were used to make the contraction. Then write the two words in the answer space. For the second ten, look at the two words. Then make a contraction and write it in the answer space.

        Examples: we're   we are
                    she will   she'll

1.	isn't	is not	11.	we have	we've
2.	he's	he is	12.	Jim is	Jim's
3.	they're	they are	13.	they had	they'd
4.	weren't	were not	14.	do not	don't
5.	let's	let us	15.	he would	he'd
6.	who's	who is	16.	did not	didn't
7.	we'll	we will	17.	it is	it's
8.	can't	can not	18.	I shall	I'll
9.	you're	you are	19.	must not	mustn't
10.	doesn't	does not	20.	would not	wouldn't

Name_____

Abbreviations are words or phrases that are shortened. Sometimes abbreviations are two or three letters long, or even longer. Sometimes they are only one letter.

When an abbreviation is only one letter long it is called an <u>initial</u>. This is because it is the first (or initial) letter of a word. Sometimes, an abbreviation is three or four initials in a row.

You need to put a period after every abbreviation and after every initial. If an abbreviation is two or more initials in a row, you need to put a period after every one.

Instructions: Here is a list of abbreviations and what they stand for. Put in the periods where they belong.

Example: street = st.
          senior = sr.
          United States Marine Corps = U.S.M.C.

1. advertisement = ad.

2. anonymous = anon.

3. attorney = atty.

4. avenue = ave.

5. Bachelor of Arts = B.A.

6. boulevard = blvd.

7. Cash on Delivery = C.O.D.

8. column = col.

9. dozen = doz.

10. Doctor = Dr.

11. department = dept.

12. et cetera (and so forth) = etc.

13. foot = ft.

14. inch = in.

15. light = lt.

16. Master of Ceremonies = M.C.

17. Medical Doctor = M.D.

18. Military Police = M.P.

19. Mister = Mr.

20. Mistress = Mrs.

21. number = no.

22. ounce = oz.

23. paid = pd.

24. Police Department = P.D.

25. post meridian (afternoon) = p.m.

26. quart = qt.

27. Reverend = Rev.

28. senior = Sr.

29. street = st.

30. Saint = St.

31. United States of America = U.S.A.

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Activity Sheet 13A
Punctuation Practice   Name_____

> On this page, you can practice what you have learned about punctuation. The kinds of punctuation you need to know in order to work this page are:
>
> | End punctuation | Apostrophes |
> | Commas | Punctuating Abbreviations |
> | Quotation Marks | |
>
> You have learned all these kinds of punctuation on the Activity Sheets you did. So this page will be easy to figure out.

Instructions: Decide which punctuation mark (if any) is left out of each line. Mark it in the answer space to the right. Then count from the left and determine the number of the word closest to where the missing mark belongs. Mark your answer in the answer space to the right.
NOTE: Some lines are <u>not</u> numbered and are <u>not</u> items.

Example:

	?	.	,	"	!		1	2	3	4	5
1. "Why do you think " asked	○	○	●	○	○		○	○	○	●	○

SGT Murphy, "that they are

	?	.	,	"	!		1	2	3	4	5
2. called the four lifesaving methods?	○	○	○	●	○		○	○	○	○	●

	?	.	,	'	"		1	2	3	4	5
1. SGT Murphy said, "On Tuesday	○	○	●	○	○		○	○	○	○	●

May 12, you have your

	?	.	,	'	"		1	2	3	4	5
2. SQT " He looked right at	○	●	○	○	○		●	○	○	○	○
3. me and said, "Lets see	○	○	○	●	○		○	○	○	●	○
4. if SP4 Wilsons squad can	○	○	○	●	○		○	○	●	○	○

tell us how to control

	?	.	,	'	"		1	2	3	4	5
5. bleeding." "Well, I started, "my	○	○	○	○	●		○	●	○	○	○
6. men studied that sir, so	○	○	●	○	○		○	○	●	○	○

	?	!	,	'	"		1	2	3	4	5
7. were ready." PVT Riley said,	○	○	○	●	○		●	○	○	○	○

	.	"	,	'	?		1	2	3	4	5
8. The first method is to	○	●	○	○	○		●	○	○	○	○
9. apply a pressure dressing." Right,"	○	●	○	○	○		○	○	○	○	●
10. I told him "Now, can	●	○	○	○	○		○	○	●	○	○

you tell the sergeant what

	.	"	,	!	?		1	2	3	4	5
11. the second method is PVT	○	○	●	○	○		○	○	○	●	○
12. Riley " He said, "It is,	○	○	○	○	●		●	○	○	○	○
13. I think to elevate the	○	○	●	○	○		○	●	○	○	○

Name_____

	Missing Punctuation Mark					Closest Word Number				

14. wounded part. "Good," I said.
- Missing Punctuation Mark: ˙ O   " ●   ' O   ! O   ? O
- Closest Word Number: 1 O   2 ●   3 O   4 O   5 O

15. "What is the third method
- Missing Punctuation Mark: ˙ O   " O   ' ●   ! O   ? O
- Closest Word Number: 1 O   2 O   3 O   4 O   5 ●

16. PVT Lee " "Use digital pressure,"
- Missing Punctuation Mark: ˙ O   " O   ' O   ! O   ? ●
- Closest Word Number: 1 O   2 ●   3 O   4 O   5 O

17. he said without delay. "Now
- Missing Punctuation Mark: ˙ O   ? O   ' ●   ' O   ! O
- Closest Word Number: 1 O   2 O   3 O   4 O   5 ●

18. PVT Lee," I asked, can

you give me the fourth
- Missing Punctuation Mark: ˙ O   ? O   " ●   ' O   ! O
- Closest Word Number: 1 O   2 O   3 O   4 O   5 ●

19. method?" He said, "Its to
- Missing Punctuation Mark: ˙ O   ? O   " O   ' O   ' ●
- Closest Word Number: 1 O   2 O   3 O   4 ●   5 O

20. use a tourniquet. But, he
- Missing Punctuation Mark: ˙ O   ? O   " ●   ' O   ' O
- Closest Word Number: 1 O   2 O   3 O   4 ●   5 O

21. added, "you dont use the

tourniquet unless the first three
- Missing Punctuation Mark: ˙ O   ? O   " O   ' O   ' ●
- Closest Word Number: 1 O   2 O   3 ●   4 O   5 O

22. methods don't work do you?"
- Missing Punctuation Mark: ˙ O   ? O   " O   ' ●   ' O
- Closest Word Number: 1 O   2 O   3 ●   4 O   5 O

23. "Right," I said. And why
- Missing Punctuation Mark: ˙ O   ? O   " ●   ! O   ' O
- Closest Word Number: 1 O   2 O   3 O   4 ●   5 O

24. not " "Because," said Lee, "the

tourniquet can damage blood vessels
- Missing Punctuation Mark: ˙ O   ? ●   " O   ! O   ' O
- Closest Word Number: 1 ●   2 O   3 O   4 O   5 O

25. and nerves." "Great " exclaimed SGT
- Missing Punctuation Mark: ˙ O   ? O   " O   ! ●   ' O
- Closest Word Number: 1 O   2 O   3 ●   4 O   5 O

26. Murphy. You men really know
- Missing Punctuation Mark: ˙ O   ? O   " ●   ! O   ' O
- Closest Word Number: 1 O   2 ●   3 O   4 O   5 O

27. your stuff. Now lets see

what the rest of the

platoon knows."
- Missing Punctuation Mark: ˙ O   ? O   " O   ' O   ' ●
- Closest Word Number: 1 O   2 O   3 O   4 ●   5 O

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MODULE PREVIEW

GRAMMAR

I.   INSTRUCTIONS: Find the <u>subject or subjects</u> in the following sentences.
      You are given four choices of possible subjects: A, B, C, or D. On the
      answer sheet, blacken the circle of the subject(s) of the sentence.

      EXAMPLE: PVT Jones finds PVT Smith beside a broken   A   B   C   D
                 electrical wire.
                                                                    ●   0   0   0
                 A. PVT Jones   C. wire
                 B. PVT Smith   D. beside

      1.   Good use of your memory skills can be made when you salute.

                 A. skills   C. salute
                 B. use   D. your

      2.   Neither I nor my buddy has to stand guard tonight.

                 A. I   C. I, buddy
                 B. duty   D. neither, nor

      3.   Who is the owner of that automobile?

                 A. owner   C. automobile
                 B. Who   D. is

      4.   The general likes soldiers who wear their uniform correctly.

                 A. uniform   C. general
                 B. soldiers   D. who

      5.   Which are the tests you need to take?

                 A. tests   C. need
                 B. Which   D. you

      6.   Neither of my friends is able to attend the party.

                 A. friends   C. able
                 B. party   D. Neither

II.   INSTRUCTIONS: Find the complete <u>verbs</u> in the following sentences. You are
      given four choices of possible verbs: A, B, C, and D. Blacken the circle
      of the complete verb of the sentence.

      EXAMPLE: Now you have seen the last of the material.   A   B   C   D

                 A. last   C. seen   0   ●   0   0
                 B. have seen   D. have

      7.   The entire platoon was ready to go to the field.

                 A. go   C. was ready
                 B. was   D. ready

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II.   FINDING VERBS, continued.

    8.   The days grow longer in the summer.

        A.   longer   C.   days
        B.   grow longer   D.   grow

    9.   He slipped and fell into the river.

        A.   fell   C.   slipped
        B.   into   D.   slipped, fell

   10.   The lowest terrain between two hilltops is called a saddle.

        A.   terrain   C.   is called
        B.   called   D.   is

   11.   Water features such as lakes, rivers, and swamps are shown in blue.

        A.   features   C.   swamps
        B.   are shown   D.   are

III. INSTRUCTIONS: You are given a choice of two verbs in the following sentences.
Decide which verb is correct. Mark the correct circle on the answer sheet.

    EXAMPLE: I (A. walk, B. walks) home alone every day.

                                              A   B
                                              ●   0

   12.   The soldiers of Company A (A. have, B. has) loaded their rifles.

   13.   You always (A. does, B. do) a good job.

   14.   Both ends (A. are, B. is) the same length.

   15.   The young recruit (A. has fell, B. has fallen) from the pontoon bridge.

   16.   You (A. was, B. were) the last one to see him.

   17.   They (A. has, B. have) gone to the show.

   18.   PVT Jones has (A. place, B. placed) the selector lever on SAFE.

   19.   The sergeant (A. orders, B. order) them to do so.

IV.   INSTRUCTIONS: You are given a choice of two words for the blank in each
sentence. Decide whether A or B completes the sentence correctly. Blacken
the correct circle on your answer sheet.

    EXAMPLE: You run _____ than I.

                                              A   B
        A.   quicker   B.   more quickly   0   ●

   20.   You have _____ control than he does.

        A.   better   B.   more better

IV.   COMPLETE THE SENTENCE, continued.

21.   The _____ of the two men carried the extra rucksack.
                A. largest   B. larger

22.   Jones brought those manuals home because _____ looked interesting.
                A. it   B. they

23.   Neither we nor John lost _____ way.
                A. our   .B. his

24.   Of the three sergeants, I like Smith _____.
                A. best   B. better

25.   Our vehicle turned the corner _____ than yours.
                A. slowlier   B. more slowly

V.   INSTRUCTIONS: Decide if each statement is written in standard English. If
       the statement is standard English, fill in answer space YES on your answer
       sheet. If it is NOT in standard English, fill in answer space NO.

       EXAMPLE: The private should have went to formation.   Yes   No
                 (Should have GONE!)   0   ●

26.   The salute of the soldiers are very important.

27.   Don't your mother write letters to you?

28.   Between you and I, you are the nicer.

29.   Neither he nor the men is saluting properly.

30.   Any recruit that wants to may reenlist.

31.   One man covers, one crosses.

32.   There was no enemy tanks in the distance.

33.   I bought this here coat at the store.

34.   Those kind of vehicles don't get stuck in the mud.

35.   Is he the drill sergeant which you questioned?

36.   Bumper markings on vehicles are helpful.

37.   Now you have all four points of the compass.

38.   He told his life story to Smith and I.

39.   He will try to do more better in the future.

40.   You inch your way along, holding the wires with one hand.

V.   STANDARD ENGLISH, continued

41. She doesn't understand the manual.

42. Looking for streams to find valleys.

43. John and I wanted it for ourselves.

44. He kept the money for hisself.

45. He scored a basket most every time.

46. I was really angry with Smith.

47. Our squad are ready to win.

48. The recruit reacted more courageously than the sergeant when the going
     got tough.

49. Estimating range is a valuable skill.

50. They went to the parade by theirselves.

51. Diet soda tastes too sweetly for me.

52. Here on the table are the reports you requested.

53. You should of come to the picnic.

54. Put those books on the table.

55. You can't learn an old dog new tricks.

56. It's me you need to see!

57. Divide the ammo among the squad.

58. He fell off of his bunk.

59. The sergeant and she get on each other's nerves.

60. Her brother and her enlisted at the same time.

61. Smith laid his maps on the sergeant's desk.

62. They wouldn't leave me help with the details.

63. The college is having their annual reunion.

64. Everybody has to do his own share of the work.

65. One of the men are sick.

66. The swim team won the ribbon from its competition.

V. STANDARD ENGLISH, continued

67. The vehicle blew a tire during the maneuver.

68. They have went home already.

69. Many of the packages was opened.

70. You should have seen those missiles!

71. Few in the crowd raised their hand to volunteer.

72. The sergeant discouraged Smith and I from reenlisting.

73. The speaker told us listeners to pay special attention.

74. He wanted to go nowheres after a hard day in the field.

75. She is a active member of the squad.

76. He said it was alright that she was late.

77. I thought I would burst with excitement.

78. They were playing basketball in back of the barracks.

79. Don't chase any animal who seems frightened!

80. Dogs that bite make me nervous.

81. What have the sergeant done to you?

ANSWER SHEET

I.
1. A B C D
   0 0 0 0

2. A B C D
   0 0 0 0

3. A B C D
   0 0 0 0

4. A B C D
   0 0 0 0

5. A B C D
   0 0 0 0

6. A B C D
   0 0 0 0

_____

II.
7. A B C D
   0 0 0 0

8. A B C D
   0 0 0 0

9. A B C D
   0 0 0 0

10. A B C D
    0 0 0 0

11. A B C D
    0 0 0 0

_____

III.
12. A B
    0 0

13. A B
    0 0

14. A B
    0 0

15. A B
    0 0

16. A B
    0 0

17. A B
    0 0

18. A B
    0 0

19. A B
    0 0

_____

IV.
20. A B
    0 0

21. A B
    0 0

22. A B
    0 0

23. A B
    0 0

24. A B
    0 0

25. A B
    0 0

_____

V.   Yes No

26. 0 0

27. 0 0

28. 0 0

29. 0 0

30. 0 0

31. 0 0

32. 0 0

33. 0 0

34. 0 0

35. 0 0

36. 0 0

37. 0 0

38. 0 0

39. 0 0

40. 0 0

41. 0 0

42. 0 0

43. 0 0

44. 0 0

Name _____

V. (Continued)

	Yes	No			Yes	No
45.	0	0		64.	0	0
46.	0	0		65.	0	0
47.	0	0		66.	0	0
48.	0	0		67.	0	0
49.	0	0		68.	0	0
50.	0	0		69.	0	0
51.	0	0		70.	0	0
52.	0	0		71.	0	0
53.	0	0		72.	0	0
54.	0	0		73.	0	0
55.	0	0		74.	0	0
56.	0	0		75.	0	0
57.	0	0		76.	0	0
58.	0	0		77.	0	0
59.	0	0		78.	0	0
60.	0	0		79.	0	0
61.	0	0		80.	0	0
62.	0	0		81.	0	0
63.	0	0				

I.

#	A	B	C	D	IF WRONG, ASSIGN:
1.	0	●	0	0	1,5,6,36
2.	0	0	●	0	1,5,6,36
3.	●	0	0	0	1,5,28,36
4.	0	0	●	0	1,5,28,36
5.	●	0	0	0	28,36
6.	0	0	0	●	5,19,36

II.

#	A	B	C	D	IF WRONG, ASSIGN:
7.	0	●	0	0	2,3,8,36
8.	0	0	0	●	2,3,8,36
9.	0	0	0	●	1,2,36
10.	0	0	●	0	7,9,11,36
11.	0	●	0	0	7,9,12,36

III.

#	A	B	IF WRONG, ASSIGN:
12.	●	0	7,9,10,11,36
13.	0	●	4,9,36
14.	●	0	3,4,36
15.	0	●	7,9,12,13,36
16.	0	●	4,9,13,36
17.	0	●	7,12,13,36
18.	0	●	7,10,11,36
19.	●	0	4,8,9,36

IV.

#	A	B	IF WRONG, ASSIGN:
20.	●	0	29,36
21.	0	●	29,36
22.	0	●	17,21,36
23.	0	●	17,21,36
24.	●	0	31,36
25.	0	●	31,36

V.

#	Yes	No	IF WRONG, ASSIGN:
26.	0	●	5,36
27.	0	●	5,6,15,36
28.	0	●	25,29,36
29.	0	●	6,36
30.	●	0	27,36
31.	●	0	35,36
32.	0	●	16,36
33.	0	●	30,36
34.	0	●	30,36
35.	0	●	27,36
36.	●	0	5,36
37.	●	0	2,36
38.	0	●	25,36
39.	0	●	31,36
40.	●	0	35,36
41.	●	0	5,6,15,36
42.	0	●	34,36
43.	●	0	26,36
44.	0	●	26,36

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V. (Continued)

	Yes	No	IF WRONG, ASSIGN:		Yes	No	IF WRONG, ASSIGN:
45.	0	●	32,36	64.	●	0	18,19,20,36,21
46.	●	0	32,36	65.	0	●	18,19,20,36,21
47.	0	●	6,36	66.	●	0	19,20,36
48.	●	0	31,36	67.	●	○	12,36
49.	●	0	34,36	68.	0	●	12,36
50.	0	●	26,36	69.	0	●	18,19,20,36,21
51.	0	●	32,36	70.	●	0	12,36
52.	●	0	16,36	71.	●	0	18,19,20,36,21
53.	0	●	7,33,36	72.	0	●	22,23,24,36
54.	●	0	30,36	73.	●	0	22,23,24,36
55.	0	●	14,36	74.	0	●	36
56.	●	○	23,24,36	75.	0	●	36
57.	●	0	33,36	76.	0	●	36
58.	0	●	33,36	77.	●	0	12,36
59.	●	0	22,23,24,36	78.	0	●	36
60.	0	●	22,23,24,36	79.	0	●	27,28,36
61.	●	0	14,36	80.	●	0	27,28,36
62.	0	●	14,36	81.	0	●	27,28,36
63.	0	●	20,36				

MODULE RECORD SHEET

GRAMMAR

OBJECTIVE: Use correct English grammar. Recognize when a sentence is
or is not written in standard English.

SAMPLE TEST ITEMS:

1. Which is the subject in this sentence?
    "When we came back from maneuvers, Tom found the
    sergeant waiting for him."

		a	b	c	d
(a) we	(c) Tom				
(b) sergeant	(d) maneuvers	o	o	●	o

2. Is this sentence written in standard English: Yes   No

    "There wasn't no reason to stay."   o   ●

INTRODUCTION TO GRAMMAR:

Grammar is the correct usage of English. If you do not understand
the rules of grammar, you will probably make mistakes when you try to speak
or write standard English.

Standard English is the kind of English that is taught in schools.
It is always correct. In the USA, many people speak dialects of English.
These dialects are special ways of talking, and they don't follow the rules
of standard English. Even if you speak a dialect of English at home and
with your friends, you need to learn to speak standard English. You will
need it in your job and in talking with people you don't know. People who
speak a dialect of English often can't understand other people who speak
a different dialect. But if you use the rules of good grammar and speak
standard English, you can be sure that others will understand what you are
saying. Even if you don't use standard English all the time, practice it
every day!

These activity sheets will teach you the rules of good grammar for
standard English. Work through all the activity sheets that have been
circled. You can check your own work using the check sheets your teacher
has shown you. If you have any questions, ask your teacher. When you are
through with all the activity sheets and are sure you understand all the
rules for good grammar, ask to take the Grammar Review.

ACTIVITY SHEETS (Do those that are circled)

1.	Subjects: Number	1A	1B
2.	Action Verbs	2A	2B
3.	Linking Verbs	3A	3B
4.	Verbs: Number	4A	4B
5.	Finding a Hidden Subject	5A	5B
6.	Agreement: Special Subjects	6A	6B
7.	Helping Verbs	7A	7B
8.	Action and Linking Verbs ↩	8A	8B
9.	Verbs: Person	9A	9B
10.	Verbs: Tense	10A	10B
11.	Regular Past Participle	11A	11B
12.	Irregular Past and Past Participles	12A	12B
13.	Verbs: Changing from Past Tense to Past Participle	13A	13B
14.	Confusing Verbs	14A	14B
15.	Subject and Verb Agreement	15A	15B
16.	Agreement: "There" and "Here"	16A	16B
17.	Pronouns: Person, Number, Antecedent	17A	17B
18.	Verb Agreement with Indefinite Pronouns	18A	18B
19.	Indefinite Pronouns as Antecedents	19A	19B
20.	Collective Nouns as Antecedents	20A	20B
21.	Practice on Pronouns Agreeing with Antecedents	21A	21B
22.	Pronouns Used as Subjects	22A	22B
23.	Pronouns Used as Objects	23A	23B
24.	Practice on Subject and Object Pronouns	24A	24B
25.	Pronouns After Prepositions	25A	25B
26.	Possessive Pronouns	26A	26B
27.	Indefinite Pronouns: WHO, THAT, WHICH	27A	27B
28.	Pronouns: Agreement	28A	28B
29.	Using Adjectives for Comparison	29A	29B
30.	Adjectives: This/That These/Those	30A	30B
31.	Using Adverbs for Comparison	31A	31B
32.	Confusing Adverbs and Adjectives	32A	32B
33.	Using Prepositions Correctly	33A	33B
34.	Blunders: Fragments	34A	34B
35.	Blunders: Run-Ons	35A	35B
36.	Good Usage of English	36A	36B

MODULE REVIEW

GRAMMAR

I. Instructions: Find the <u>subject</u> or <u>subjects</u> in the following sentences.
You are given four choices of possible <u>subjects</u>: A, B, C, or D. On the answer
sheet, blacken the circle of the subject(s) of the sentence.

Example: My elbow knocked the water pitcher to the floor.

     A   B   C   D

     0   0   ●   0

     A. water   C. elbow
     B. knocked   D. pitcher

1. Neither of the soldiers could remember the
     WORM formula.

     A. soldiers   C. WORM
     B. Neither   D. formula

2. Who were the last people to see the parachutist?

     A. Who   C. were
     B. people   D. parachutist

3. Which are the reports you need?

     A. reports   C. you
     B. Which   D. are

4. Either he or his brother received an inheritance.

     A. Either   C. he, brother
     B. he   D. inheritance

5. Many skills of each category are found to overlap.

     A. category   C. Many
     B. overlap   D. skills

6. The IG team asks questions which cannot be
     easily answered.

     A. questions C. team
     B. which   D. IG

II. Instructions: Find the complete <u>verbs</u> in the following sentences.
You are given four choices of possible verbs: A, B, C, and D. Blacken the
circle of the complete verb of the sentence.

Example: The husky soldier could hardly waddle through
           the door.   A   B   C   D
                                                             _____
           A. hardly   C. could hardly waddle   0   0   0   ●
           B. could hardly D. could waddle

7. The rugged terrain is shown as jagged lines.

              A. rugged   C. is
              B. is shown   D. shown

8. The highest point of elevation is usually a good
    place to position yourself.

              A. is   C. highest
              B. is usually   D. place

9. He gathered the twigs and combined them to
    camouflage his position.

              A. combined   C. gathered,
                                      combined
              B. gathered   D. gathered, combined,
                                      camouflage

10. The greedy man was happy to take the money.

              A. greedy   C. was
              B. was happy   D. take

11. The banana tastes good with peanut butter on it.

              A. tastes   C. tastes good
              B. on   D. banana

III. Instructions: You are given a choice of two verbs in the following
sentences. Decide <u>which verb is correct</u>. Mark the correct circle on the
answer sheet.

Example: He (A. tells, B. tell) the truth all the time.   A   B
                                                               _____
                                                               ●   0

12. The rewards of good sportsmanship (A. is, B. are) many.

13. You never (A. seem, B. seems) to tire on a
long march.

14. Both soldiers (A. have, B. has) the same MOS.

15. He said you (A. was, B. were) the only person he
could trust.

16. They (A. has, B. have) requested a change of orders.

17. The parachutist (A. had fallen, B. had fell) too far
before his chute opened.

18. PVT Jones has (A. placed, B. place) the duty roster
on the bulletin board.

19. The first sergeant (A. want, B. wants) the company
to win the championship.

IV. Instructions: You are given a choice of two words for the blank in each
sentence. Decide whether A or B completes the sentence correctly. Blacken
the correct circle on your answer sheet.

Example: You swim _____ than I.

           A. faster   B. more faster

A B

● 0

20. You have a _____chance to win the
price than he.
A. more better   B. better

21. The _____ of the two soldiers loaded the
extra provisions.

           A. stronger   B. strongest

22. Of the three commanders, I like Jones _____.

           A.   best   B. better

23. My vehicle rounded the bend _____than yours.

           A. more slowly   B. slowlier

24. Neither he nor Smith could find _____ fatigue cap.

           A.   their   B. his

25. We asked those questions because _____seemed
important.

           A.   it   B. they

V. Instructions. Decide if each statement is written in standard English.
If the statement is standard English, fill in answer space YES on your answer
sheet. If it is NOT in standard English, fill in answer space NO.

Example: The old man should have went home earlier.   YES   NO
                 (SHOULD HAVE GONE!)   0   ●

26. The attitude of the soldiers are very important.

27. Don't your friend realize how lucky he is?

28. Between you and she, you are the smarter.

29. Neither she nor the men are marching properly.

30. Any soldier that requests it may get a stateside swap.

31. You must cross open areas time is critical.

32. There was only three enemy tanks sighted in the distance.

33. I received this here recommendation from the first sergeant.

34. Those kind of plans usually cause trouble.

35. Is he the medic which you said behaved bravely?

36. Markings on vehicle bumpers are helpful in identification.

37. Now you have the information you need to zero your weapon.

38. Smith did not hesitate to offer his chair to Jones or I.

39. They will try to march more better in the future.

40. Cradle the rifle in your arms, keeping its muzzle off the ground.

41. By alternately advancing your right elbow and left knee.

42. He doesn't understand the court martial proceedings.

43. Smith and Jones whittled the airplane by themselves.

44. He kept the fanciest guitar for hisself.

45. She answered most every question with a negative statement.

46. I was really full after the big dinner.

47. Our company are the leader in the Commanders' Cup.

48. The young recruit reacted more courageously than any other
         soldier in the squad.

49. Estimating range is a skill everyone needs.

50. They decided to make all the arrangements by theirselves.

51. That candy tastes too sweetly for us.

52. Here on the desk is the manual you wanted.

53. Smith should of been on time.

54. Put those documents in the safe.

55. He tried to learn me how to tie a slip-knot.

56. It's me who called you last night.

57. Split the proceeds among the seven charities.

58. The disabled vehicle fell off of the ridge.

59. The captain and he were always at each other's throats.

60. His brother and him are closer than ever.

61. Jones laid out his information for everyone to see.

62. The sarge wouldn't leave me help with the action.

63. The army is having their annual birthday.

64. Everyone has to repeat his social security number.

65. One of the vehicles are broken.

66. The rifle team beat its closest competition in the final.

67. The deuce-and-a-half blowed a tire.

68. The CO already have went home.

69. Many of the germs in the hospital was killed with disinfectant.

70. You should have seen those parachutes fill the sky!

71. Few in the neighborhood raised their flags on the holiday.

72. The colonel discouraged the sergeant and I from transferring.

73. The knight in shining armor told us to believe what we saw.

74. They had nowheres near the money they needed to last the month.

75. He is a arithmetic whiz!

76. It is alright that the string on the banjo finally broke.

77. She almost burst with joy!

78. There was a loud noise in back of the building.

79. Any animal who seems frightened may attack you.

80. Cats that scratch scare me!

81. What have the teacher done with your test?

ANSWER SHEET
Module Review
Grammar   Name _____

I.		A	B	C	D		V.		YES	NO				YES	NO
	1.	0	0	0	0		26.		0	0		61.		0	0
	2.	0	0	0	0		27.		0	0		62.		0	0
	3.	0	0	0	0		28.		0	0		63.		0	0
	4.	0	0	0	0		29.		0	0		64.		0	0
	5.	0	0	0	0		30.		0	0		65.		0	0
	6.	0	0	0	0		31.		0	0		66.		0	0
II.	7.	0	0	0	0		32.		0	0		67.		0	0
	8.	0	0	0	0		33.		0	0		68.		0	0
	9.	0	0	0	0		34.		0	0		69.		0	0
	10.	0	0	0	0		35.		0	0		70.		0	0
	11.	0	0	0	0		36.		0	0		71.		0	0
							37.		0	0		72.		0	0
III.	12.	0	0				38.		0	0		73.		0	0
	13.	0	0				39.		0	0		74.		0	0
	14.	0	0				40.		0	0		75.		0	0
	15.	0	0				41.		0	0		76.		0	0
	16.	0	0				42.		0	0		77.		0	0
	17.	0	0				43.		0	0		78.		0	0
	18.	0	0				44.		0	0		79.		0	0
	19.	0	0				45.		0	0		80.		0	0
							46.		0	0		81.		0	0
IV.	20.	0	0				47.		0	0					
	21.	0	0				48.		0	0					
	22.	0	0				49.		0	0					
	23.	0	0				50.		0	0					
	24.	0	0				51.		0	0					
	25.	0	0				52.		0	0					
							53.		0	0					
							54.		0	0					
							55.		0	0					
							56.		0	0					
							57.		0	0					
							58.		0	0					
							59.		0	0					
							60.		0	0					

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I.	A	B	C	D	IF WRONG, ASSIGN:
1.	○	●	○	○	5,19,36
2.	○	●	○	○	1,5,28,36
3.	●	○	○	○	28,36
4.	○	○	●	○	1,5,6,36
5.	○	○	○	●	1,5,6,36
6.	○	○	●	○	1,5,28,36

II.	A	B	C	D	IF WRONG, ASSIGN:
7.	○	●	○	○	2,3,8,36
8.	●	○	○	○	7,9,11,36
9.	○	○	●	○	1,2,36
10.	○	○	●	○	2,3,8,36
11.	●	○	○	○	7,9,12,36

III.			IF WRONG, ASSIGN:
12.	○	●	7,9,10,11,36
13.	●	○	29,36
14.	●	○	3,4,36
15.	○	●	29,36
16.	○	●	7,12,13,36
17.	●	○	7,9,12,13,36
18.	●	○	7,10,11,36
19.	○	●	4,8,9,36

IV.			IF WRONG, ASSIGN:
20.	○	●	29,36
21.	●	○	29,36
22.	●	○	31,36
23.	●	○	29,36
24.	○	●	29,36
25.	○	●	17,21,36

V.	YES	NO	IF WRONG, ASSIGN:
26.	○	●	5,36
27.	○	●	5,6,15,36
28.	○	●	25,29,36
29.	●	○	6,36
30.	●	○	27,36
31.	○	●	35,36
32.	○	●	16,36
33.	○	●	30,36
34.	○	●	30,36
35.	○	●	27,36
36.	●	○	5,36
37.	●	○	2,35
38.	○	●	25,36
39.	○	●	31,36
40.	●	○	35,36
41.	○	●	34,36
42.	●	○	5,6,15,36
43.	●	○	26,36
44.	○	●	26,36
45.	○	●	32,36
46.	●	○	32,36
47.	○	●	6,36
48.	●	○	31,36
49.	●	○	34,36
50.	○	●	26,36
51.	○	●	32,36
52.	●	○	16,36
53.	○	●	7,33,36
54.	●	○	30,36
55.	○	●	14,36

	YES	NO	IF WRONG, ASSIGN:
56.	○	●	23,24,36
57.	○	●	33,36
58.	○	●	33,36
59.	●	○	22,23,24,36
60.	○	●	22,23,24,36
61.	●	○	14,36
62.	○	●	14,36
63.	○	●	20,36
64.	●	○	18,19,20,36,17,21
65.	○	●	18,19,20,36,17,21
66.	●	○	19,20,36,17,21
67.	○	●	12,36
68.	○	●	12,36
69.	○	●	18,19,20,36
70.	●	○	12,36
71.	●	○	18,19,20,36
72.	○	●	22,23,24,36
73.	●	○	22,23,24,36
74.	○	●	36
75.	○	●	36
76.	○	●	36
77.	●	○	12,36
78.	○	●	36
79.	○	●	27,28,36
80.	●	○	27,28,36
81.	○	●	27,28,36

Name _____

> Every sentence must have at least one SUBJECT. The subject is the "who" or "what" word. It tells you "who" or "what" does something. The subject usually comes at the beginning of the sentence before the verb.
>
> EXAMPLE: 1. <u>You</u> treat a chemical burn differently than an electrical burn.
>
>   "Who" treats a burn? "You" do. <u>You</u> is the subject of the sentence.
>
> Subjects have NUMBER. They may be SINGULAR, meaning <u>only one</u> of something. They may be PLURAL, meaning <u>more than one</u> of something. SUBJECTS THAT END IN "S" ARE USUALLY PLURAL. BUT NOT ALL PLURAL SUBJECTS END IN "S".
>
> EXAMPLE: 1. A <u>burn</u> should be treated at once. (<u>one</u> burn)
>
>   2. <u>Burns</u> should be treated at once. (<u>more than one</u> burn)
>
>   3. <u>They</u> should be treated at once. (<u>more than one</u>)

INSTRUCTIONS: In the following sentences, decide which word is the subject of the sentence. Underline that word with <u>one line.</u> Then decide if that subject is singular or plural. Blacken the correct space.

	Singular	Plural
EXAMPLES: 1. An electrical <u>wire</u> can cause burns.	■	☐
2. Electrical <u>wires</u> can cause burns.	☐	■

	Singular	Plural
1. PVT Jones finds SGT Smith beside a broken electrical wire.	☐	☐
2. SGT Smith has been shocked by the electric current.	☐	☐
3. A private notifies the medics.	☐	☐
4. Several soldiers hurry over.	☐	☐
5. They pull SGT Smith away from the wire.	☐	☐

Name _____

	Singular	Plural
6. One soldier tears the sleeve of the sergeant's fatigues.	☐	☐
7. He uncovers the burn.	☐	☐
8. A cloth sticks to the burn.	☐	☐
9. The men do NOT remove that piece of cloth.	☐	☐
10. PVT Jones tells them not to clean the burn.	☐	☐
11. "We must not put medicine on it!"	☐	☐
12. He loosens SGT Smith's other clothing.	☐	☐
13. The other soldiers place SGT Smith on his back.	☐	☐
14. They elevate his feet 12 to 18 inches to prevent shock.	☐	☐
15. Everyone stays calm and sensible.	☐	☐
16. "I don't have a first aid packet."	☐	☐
17. Not one is found.	☐	☐
18. Jones uses the next best thing.	☐	☐
19. Two soldiers have clean handkerchiefs.	☐	☐
20. He takes those and puts them on the burn.	☐	☐
21. Minutes pass.	☐	☐

		Singular	Plural
22.	Finally, the medics arrive and take over.	☐	☐
23.	PVT Jones used his head in an emergency situation.	☐	☐

Name _____

Every sentence must have at least one VERB. One kind of verb is the ACTION verb. It tells you what someone or something is doing or has done.

Example: 1. SGT Smith <u>runs</u> with his platoon.

"Runs" is a "do" word, an action word. Action verbs tell about two kinds of action: body and mind. An action of the body includes PHYSICAL "doings:"

Example: I <u>eat</u>.

I <u>sleep</u>.

I <u>work</u>.

An action of the mind includes MENTAL "doings:"

Example: I <u>think</u>.

I <u>plan</u>.

I <u>hope</u>.

I <u>dream</u>.

I <u>have</u> a goal.

A sentence may have more than one main verb.

Example: He <u>slipped</u> and <u>fell</u> into the river.

Instructions: Underline the ACTION verbs in the following sentences with two lines. The subject is already underlined for you with <u>one line</u>.

Example: <u>You</u> <u>spot</u> smoke, mist, vapor or drops.

---

1. <u>You</u> determine direction with the Shadow Tip method.

2. <u>You</u> place a stick on the ground vertically.

3. The <u>sun</u> casts a shadow.

4. <u>You</u> mark the tip of the shadow with a stone or a twig.

5. <u>That</u> marks the West line.

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6. In 10 to 15 minutes, the <u>shadow</u> moves.

7. The <u>shadow</u> moves from West to East.

8. <u>You</u> mark the second shadow, the East line.

9. Now <u>you</u> draw a straight line through the two marks.

10. That <u>line</u> shows the East-West line.

11. <u>You</u> make a North-South line at a right angle to the East-West line at any point.

12. Now <u>you</u> have all four points of the compass.

> In the M60 machine gun, the 7.62 mm cartridges are <u>linked</u> together. There is a kind of verb which <u>links</u> parts of sentences together in the same way. The LINKING verb connects the subject with another word that tells you something about the subject. That word is called a DESCRIPTIVE WORD because it describes the subject.
>
> ```
>                             (linking  (descriptive
>                  (subject)   verb)       word)
> Example:  1.  The platoon  was  the winner of the competition.
> ```
>
> ```
>                             (linking  (descriptive
>                  (subject)   verb)       word)
>           2.  The winners  seemed  happy.
> ```
>
> The descriptive word answers the question, Who? What? or How?
>
> > (The platoon was what? The <u>winner</u>.
> > The winners seemed how? <u>Happy</u>.)
>
> The most common linking verbs are:
>
> > be (am, is, are, was, were),
> > become, appear, seem, grow, remain (<u>verbs</u> of <u>being</u>)
> > look, smell, feel, taste, sound (<u>verbs</u> of the <u>senses</u>)

Instructions: In the following sentences the subject is underlined with one line. The descriptive word is circled. You should underline the LINKING VERB with <u>two lines</u>.

> Example: 1. <u>Pvt Jones</u> <u>looked</u> (handsome) in his uniform.

1. <u>The Red Cross</u> is a (help) to the soldier.

2. The entire <u>platoon</u> was (ready) to go to the field.

3. <u>Pvt. Jones</u> of Company A remained (unconscious) after the fall.

4. <u>They</u> felt (good) about weekend pass.

5. Pvt. Smith's <u>fatigues</u> look (wrinkled.)

Name _____

Now, YOU circle the descriptive word. Underline the linking verb with two lines. The subject is underlined.

6.   The Christmas <u>dinner</u> at the mess hall tasted delicious.

7.   His <u>television</u> sounded loud to me.

8.   The <u>men</u> were angry about their late pay checks.

9.   <u>I</u> am the only person at home.

10.   Yesterday <u>Jones</u> became the winner of the lottery.

11.   <u>We</u> remain friends through the years.

12.   The <u>days</u> grow longer in the summer.

13.   <u>That</u> is my friend at the door.

14.   The orderly <u>room</u> appeared smoky after the meeting.

15.   <u>You</u> seem too tired to work today.

Every sentence must have at least one VERB. A verb can be either an ACTION word, such a <u>run</u>, or a LINKING verb, such as <u>is</u>.

All verbs have NUMBER. A verb can be singular (one) or plural (more than one). A VERB ENDING IN "S" IS USUALLY SINGULAR.

Examples: 1. The private <u>puts</u> on his protective clothing.

2. His sergeant <u>orders</u> him to do so.

"Puts" and "orders" are both singular. Notice that they both end in "s."

IF A VERB DOES <u>NOT</u> END IN "S," IT IS USUALLY PLURAL.

Example: 1. The privates <u>put</u> on their protective clothing.

"Put" is plural.

THE WORDS "YOU" AND "I" ALWAYS TAKE A PLURAL VERB.

Example: 1. You <u>put</u> on your protective clothing.

"Put" is plural.

Instructions: In the following sentences, find the verb. Underline it with <u>two lines</u>. Then decide if it is a singular verb or a plural verb. Blacken the <u>correct</u> space at the end of each sentence.

		Singular	Plural
Examples:	1. The privates <u>put</u> on their protective clothing	☐	■
	2. The sergeant <u>orders</u> them to do so.	■	☐

		Singular	Plural
1.	Protective clothing includes overgarment, trousers and shirt, gloves, and overboots.	☐	☐
2.	Soldiers put on protective clothing for an NBC attack.	☐	☐
3.	You blouse your trousers inside your boots.	☐	☐
4.	PVT Jones pulls on his overboots.	☐	☐
5.	He threads the lace through the front eyelet.	☐	☐
6.	Both ends are the same length.	☐	☐

Name _____

	Singular	Plural
7. He ties a single hitch.	☐	☐
8. Laces go through the side eyelets from inside to outside.	☐	☐
9. You pull tight.	☐	☐
10. Use a single hitch!	☐	☐
11. Each lace goes through the rear eyelet in the same way.	☐	☐
12. The ends come back through the side eyelet.	☐	☐
13. Across the instep, a single hitch ties the laces.	☐	☐
14. Around the upper part of his overboot, PVT Jones wraps the laces.	☐	☐
15. All of the soldiers zip down each leg of the overgarment trousers.	☐	☐
16. They blouse the overgarment trousers over the overboot.	☐	☐
17. Soldiers also have shirts and gloves for protection.	☐	☐

When a group of words stands between the subject and the verb, you must look carefully to find the subject.

```
              (subject)                        (verb)
Example:  1.  The soldiers of the engineer battalion are  last in the convoy.

              (subject)                   (verb)
          2.  The soldier who does best on the SQT receives a weekend pass.
```

These groups of words that get in the way and hide the subject can be either prepositional phrases (as in Example 1) or helping clauses (as in Example 2). They both tell about the subject. You must get rid of the group of words to find the subject. Circle it to throw it out of the sentence!

Instructions: In the following sentences, the verbs are underlined with two lines. Find the subject of the sentence. (Remember: It is the "who" or "what" word!) Underline it with one line. Circle the group of words that comes between the subject and the verb.

```
              (subject)                      (verb)
Example:  Good use (of your memory skills) can be made when you salute.
```

"Use" is the subject. The group of words circled makes it hard to find the subject. You circle them to get them out of the way!

1. The salute of the soldier is very important.

2. The letters of "SALUTE" can be used to remember information to report.

3. The six letters in the word offer a sensible way to recall points of

   interest in reporting and collecting information.

4. The "S" in the word stands for SIZE of the object you saw.

5. The number of personnel can mean SIZE also.

6. ACTIVITY of the enemy means what the enemy was doing.

7. Grid coordinates from a known location <u>are</u> LOCATION.

8. The UNIT of the foe <u>should be described</u>.

9. Any description of patches or clothing <u>is</u> valuable information.

10. Bumper markings on vehicles <u>are</u> helpful.

11. The TIME of the activity <u>should be reported</u>.

12. The EQUIPMENT associated with the activity <u>furnishes</u> helpful information.

13. The soldier who is alert <u>will spot</u> the enemy quickly.

14. Each item of interest expressed by the letters of the key word "SALUTE"
    <u>relates</u> necessary data.

Here are some rules about SUBJECTS that you will have to learn.

1. A SENTENCE MAY HAVE MORE THAN ONE SUBJECT.

    Example: The staff sergeant and the private are late for formation.

        "Sergeant" is singular. "Private" is singular. "Are" is
        a plural verb.

    TWO OR MORE SINGULAR SUBJECTS JOINED BY "AND" MAKE A PLURAL SUBJECT.
    YOU NEED A PLURAL VERB!

2. IF TWO OR MORE SINGULAR SUBJECTS ARE JOINED BY "OR" OR "NOR,"
    USE A SINGULAR VERB.

    Example: Neither I nor my buddy has to stand duty tonight.

        The subjects "I" and "buddy" are connected by "nor."
        "Has" is a singular verb.

3. PLURAL SUBJECTS JOINED BY "OR" OR "NOR" NEED A PLURAL VERB.

    Example: Either the men or the women are the winners.

        "Men" is plural. "Women" is plural. "Are" is plural.

4. IF TWO SUBJECTS JOINED BY "OR" OR "NOR" ARE NOT THE SAME PERSON OR
    NUMBER, THE VERB MUST AGREE WITH THE SUBJECT CLOSER TO IT!

    Example: Neither Jones nor the men are saluting properly.

        "Jones" is singular. "Men" is plural. The verb "are saluting"
        is plural to agree with "men."

5. SOME SUBJECTS NEED SPECIAL MENTION. THEY ARE SINGULAR IN MEANING
    BUT THEY END IN "S." THEY NEED A SINGULAR VERB.

            mathematics   measles   series
            news   politics   the United States

    Example: Mathematics is my favorite subject.

        "Mathematics" is singular. "Is" is singular.

6. THERE ARE WORDS THAT SUGGEST MORE THAN ONE PERSON, BUT THEY ARE
    SINGULAR.

            group   company   tribe
            team   government   college
            class   school   mob
                                        flock

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They need a <u>singular verb</u>.

Example: Our basketball <u>team</u> <u>is winning</u> the tournament.

"Team" is singular; "is winning" is singular. Subject and
verb agree. That's good English!

Instructions. In the following sentences underline the subjects with one line.
Look at the rules in this lesson and decide if the subject needs a singular verb
or a plural verb. Mark the correct box. Then underline the correct verb with
<u>two lines.</u>

	Singular	Plural
Example: Neither <u>he</u> nor <u>she</u> (<u>speaks</u>, speak) Spanish.	■	☐
1. Either the soldiers or the vehicles (makes, make) the position known.	☐	☐
2. Neither the troops nor the truck (leaves, leave) a trail.	☐	☐
3. You and your buddy (has, have) not disturbed the terrain around your position.	☐	☐
4. Either the Soviet Union or the United States (is, are) ahead in the arms race.	☐	☐
5. A group of my friends (is, are) waiting outside.	☐	☐
6. Politics (was, were) the most exciting profession he spoke about.	☐	☐
7. Neither the men nor the company (receives, receive) a commendation.	☐	☐
8. I hope either Mary or you (has, have) the correct change.	☐	☐
9. The Army and the Air Force (offers, offer) many job opportunities.	☐	☐
10. Neither my friends nor I (attends, attend) night school.	☐	☐

The VERB in a sentence may be one word.

   Example: SGT Smith <u>fired</u> the M16 yesterday.

Or the VERB may be two or more words--a main verb and <u>helping verbs</u>.

   Example: SGT Smith <u>has fired</u> the M16 before.

"Fired" is the main verb. "Has" is the helping verb. "Has fired" is the VERB PHRASE.

Helping verbs help the main verb tell what the subject is doing. Often the helping verb is separated from the main verb by another word. Don't let this confuse you!

   Example: <u>Are</u> you <u>firing</u> the gun?

"Are" is the helping verb. "Firing" is the main verb. <u>The helpers come first; the main verb comes last</u>.

There are two verbs that are used more than any others. They are also the most often used helping verbs.

<div align="center">To BE</div>

I <u>am</u> firing	we <u>are</u> firing	I <u>was</u> firing	We <u>were</u> firing
You <u>are</u> firing	You <u>are</u> firing	You <u>were</u> firing	You <u>were</u> firing
He		He	
She <u>is</u> firing	They <u>are</u> firing	She <u>was</u> firing	They <u>were</u> firing
It		It	

<div align="center">To HAVE</div>

I <u>have</u> fired	We <u>have</u> fired	I <u>had</u> fired	We <u>had</u> fired
You <u>have</u> fired	You <u>have</u> fired	You <u>had</u> fired	You <u>had</u> fired
He		He	
She <u>has</u> fired	They <u>have</u> fired	She <u>had</u> fired	They <u>had</u> fired
It		It	

Other helping verbs are:

He <u>does</u> fire	It <u>could</u> fire	It <u>must</u> fire
They <u>do</u> fire	I <u>can</u> fire	She <u>will</u> fire
You <u>did</u> fire	He <u>may</u> fire	

Grammar
Activity Sheet 7A
Helping Verbs   Name _____

IMPORTANT! The helping verb has NUMBER. It may be either SINGULAR or PLURAL.
The NUMBER of the verb phrase depends on the NUMBER of the helping verb.

Instructions: The main verb is underlined with <u>two lines</u>. Underline the
helping verb with <u>two lines</u>.

                        (helping   (main
                          verb)   verb)
       Example: He <u>could have</u> <u>fired</u> his weapon for record.

---

1. You must <u>place</u> the selector on safe when clearing your M16A1 rifle.

2. The weapon must be <u>cocked</u> for the selector to be pointed toward safe.

3. The charging handle is <u>pulled</u> rearward.

4. Then the bottom of the bolt catch is <u>pressed</u>.

5. The bolt will then <u>move</u> forward.

6. The charging handle will be <u>returned</u> to forward.

7. Was it <u>placed</u> on safe?

8. To be sure these areas contain no ammo, you should <u>eyeball</u> the receiver
       and chamber.

9. The selector lever has been <u>pointing</u> toward safe.

10. Each soldier had <u>allowed</u> the bolt to go forward by pressing the upper
       part of the bolt catch.

Grammar
Activity Sheet 8A
Action and Linking Verbs   Name _____

> An ACTION verb tells what the subject does. A LINKING verb connects the subject with another word that tells us more about the subject.

Instructions: In the following sentences underline the complete verb phrase with <u>two lines</u>. Decide if it is an ACTION verb or a LINKING verb. Blacken the <u>correct box at</u> the end of the sentence. Remember your list of linking verbs from Activity Sheet 3A.

		Action	Linking
Example:	PVT Jones <u>has requested</u> leave.	▌	||
	SGT Smith <u>is</u> on leave.	||	▌

		Action	Linking
1.	You must recognize the signs of heat cramps and heat exhaustion.	||	||
2.	Signs of heat exhaustion include weakness, dizziness, coolness and moistness of skin, and headache.	||	||
3.	Heat stroke includes an upset stomach, hot and dry skin, and a feeling of confusion.	||	||
4.	A soldier has an unknown heat injury.	||	||
5.	He is conscious.	||	||
6.	The sick soldier must drink ¼ canteen of water.	||	||
7.	He then should swallow two salt tablets.	||	||
8.	You do NOT give salt tablets to a soldier who is sick to his stomach.	||	||
9.	Is he sick to his stomach?	||	||
10.	If not, he drinks the rest of the water in the canteen.	||	||
11.	Movement to a shady area will come next.	||	||
12.	You loosen any tight clothing.	||	||

Name _____

	Action	Linking
13. Someone raises his feet 12 to 18 inches.	||	||
14. Medical help is necessary.	||	||
15. Any heat problem can be serious.	||	||
16. You take any heat problem seriously.	||	||

Name _____

A subject and a present tense verb agree if you use the correct <u>form</u> of the verb with your subject. The subject and verb must agree in PERSON and in TENSE. This activity sheet will help you understand PERSON as it relates to verbs.

There are three persons: <u>first</u>, <u>second</u>, and <u>third</u>. The FIRST person means the <u>speaker</u> (I, we). The SECOND person means the <u>person spoken to</u> (you). The THIRD person means the <u>person, place, or thing being spoken about</u> (he, she, it, they). Each person has a SINGULAR and a PLURAL.

	SINGULAR			PLURAL	
	subject	verb		subject	verb
1st person	I	walk	1st person	we	walk
2nd person	you	walk	2nd person	you	walk
3rd person	he		3rd person	they	walk
	she	walk (s)			
	it				

THE ONLY TIME YOU CAN ADD AN -S or -ES TO A VERB IN THE PRESENT TENSE IS WHEN THE SUBJECT IS A <u>THIRD PERSON SINGULAR</u> (he, she, it).

Example:	If the subject is	The verb in the present tense must take an
	he	
	she	
	it	
	John	→ S (or -es)
	Susan	
	the girl	
	the table	
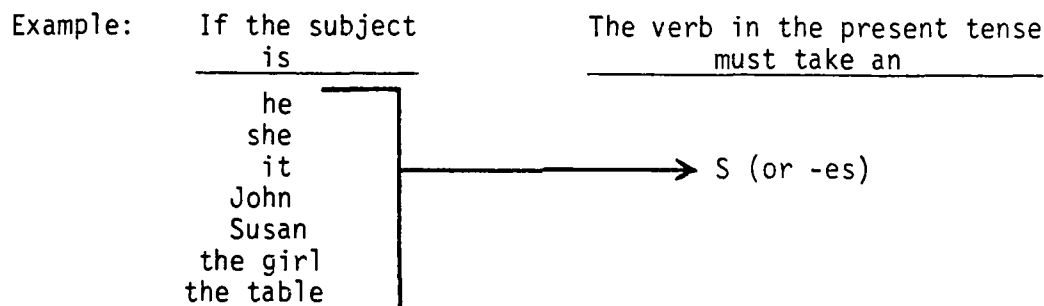
You must be able to choose the correct <u>form</u> of a verb. To do this you first decide upon the PERSON and the NUMBER of the subject. The verb will have the same PERSON and NUMBER as the subject.

Instructions: In the following sentences, you must do three things. (1) Underline the subject with one line. (2) Decide if it is 1st, 2nd, or 3rd person. Blacken the correct box on the answer sheet. (3) Decide if it is SINGULAR or PLURAL. Blacken the correct box. NOTE: <u>"You" is ALWAYS PLURAL!</u>

Examples:

		Person			Singular	Plural
		1	2	3		
1.	<u>I</u> dislike this kind of weather.	▮	‖	‖	▮	‖
2.	The <u>men</u> in the platoon agree to participate.	‖	‖	▮	‖	▮
3.	<u>You</u> always do a good job.	‖	▮	‖	‖	▮

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1. He never tells anything but the truth.

2. The word "terrain" means "land."

3. You identify classes of terrain features on a military map.

4. Terrain features are either natural or man-made.

5. We use five colors to identify a class of features.

6. BLACK shows most cultural or man-made features.

7. Water features such as lakes, rivers, or swamps are shown in BLUE.

8. GREEN is for vegetation--woods, orchards, vi   ards.

9. RED points out man-made features that are cla ified by their kind or
   use--main roads, built-up areas.

10. All contour lines are identified by BROWN.

11. "Contour" means "outside edge."

12. Closed contour lines show hilltops.

13. The lowest terrain between two hilltops is called a saddle.

14. Take the easiest route possible.

15. Pvt Jones says the enemy is on the hill.

16. I don't go through the saddle.

17. Maps show valleys with U or V-shaped brown lines.

18. The base of the U or V points toward higher ground.

19. On a ridge, the ground slopes down in three directions.

20. A ridge is a fairly long and narrow piece of terrain.

ANSWER SHEET
Grammar
Activity Sheet 9A
Verbs: Person   Name _____

	Person			Singu-lar	Plural
	1	2	3		
1.	||	||	||	||	||
2.	||	||	||	||	||
3.	||	||	||	||	||
4.	||	||	||	||	|T
5.	||	||	||	||	||
6.	||	||	||	||	||
7.	||	||	||	||	||
8.	||	||	||	||	||
9.	||	||	||	||	||
10.	||	||	||	||	||
11.	||	||	||	||	||
12.	||	||	||	||	||
13.	||	||	|i	||	||
14.	||	||	||	||	||
15.	||	||	||	||	||
16.	||	||	||	||	||
17.	||	||	||	||	||
18.	||	||	||	||	||
19.	||	||	||	||	||
20.	||	||	||	||	||

TENSE means "time." Tense of the verb means "when" the action takes place. The three simple tenses are the PRESENT, the PAST, and the FUTURE.

The PRESENT tense tells what is happening NOW.

Example: Today the company marches together.

Most action verbs are REGULAR verbs. To make the PRESENT tense of regular verbs, you use the original form of the verb for all persons everywhere except the 3rd person singular. The letter "s" must be added to the 3rd person singular.

Example: Singular   Plural

1st Person (the speaker)   I salute   We salute
2nd Person (person spoken to)   You salute   You salute
3rd Person (person spoken about)   He   They salute
                                    She salutes
                                    It

REMEMBER: AN "S" ON A VERB MAKES IT SINGULAR!

The PAST tense tells what already has happened.

Example: Yesterday the squad marched well.

You form the PAST tense of REGULAR verbs by adding "-ed" to the verb. If the verb ends in "-e," just add "d" to form the PAST tense.

Example: Present   Past
             release   release(d)
             salute   salute(d)
             march   march(ed)
             desire   desire(d)

Instructions: If the underlined verb is PAST tense, change it to PRESENT. If it is PRESENT tense, change it to PAST. Put the correct verb on the line at the end of the sentence.

Example: SP4 Miller salutes the flag. ___saluted___

1. To disassemble the M16A1 rifle, you cleared it first. _____

2. Pvt Jones removes the sling and handguards. _____

3. He disassembles the rifle according to his manual. _____

4. After disassembly, you lubricated your weapon. _____

5. After firing, he <u>cleaned</u> his weapon for 3 consecutive
    days with rifle bore cleaner. _____

6. He <u>wiped</u> it dry. _____

7. The bolt carrier group <u>needed</u> a good cleaning. _____

8. You <u>remembered</u> to remove excess oil from the bore
    before firing. _____

9. He <u>applies</u> only a light coat of LSA to the firing
    pin and the firing pin recess. _____

10. You <u>use</u> a generous amount of LSA inside the
    lower receiver. _____

In Activity Sheet 10A, you learned about the PRESENT TENSE and the PAST TENSE of verbs. There is another kind of verb form called the PART PARTICIPLE. It looks a lot like the past tense. You add "-ed" or "-d" to a regular verb, just like in the past tense.

BUT THERE IS A DIFFERENCE! THE PAST PARTICIPLE MUST ALWAYS HAVE A HELPING VERB WITH IT!

Past --

Example: 1. They <u>reduced</u> the number of weapons in the arsenal.
                    (helping   (past
                     verb)   participle)
          2. They <u>have</u>   reduced the number of weapons in the arsenal.

Important: <u>In a past participle, only the helping verb has NUMBER.</u> It is either singular (one) or plural (more than one). If the subject of the sentence is plural, the helping verb must be plural. If the subject is singular, the helping verb must be singular. The past participle keeps the same form no matter what the subject is. ONLY THE HELPING VERB CHANGES.

Instructions: The subject is underlined with one line. The complete verb phrase is underlined with two lines. If the subject and verb agree in NUMBER (BOTH are singular or BOTH are plural), blacken the "yes" box. If they do not agree, blacken the "no" box.

	Yes	No
Example: The <u>soldiers</u> <u>has reduced</u> the number of weapons in the arsenal.	—	■

"Soldiers" is the subject. It is plural. "Has reduced" is the verb. "Has" is the helping verb; it is singular. The subject is plural; the verb is singular. <u>They do not agree.</u> <u>Blacken "no."</u>

REMEMBER: AN "S" ON A SUBJECT MAKES IT PLURAL. AN "S" ON A VERB MAKES IT SINGULAR.

	Yes	No
1. The <u>soldiers</u> <u>have loaded</u> the chamber of the M16A1 rifle within 10 seconds.	☐	☐
2. <u>Pvt Jones</u> of Company A <u>have cocked</u> the rifle.	☐	☐
3. <u>He</u> <u>has placed</u> the selector level on "safe."	☐	☐
4. <u>Sgt Smith</u> <u>has opened</u> the bolt.	☐	☐

	Yes	No

5. She have looked into the chamber to be sure that it is clear.

6. "I has known that it is clear," she says.

7. The magazine is pushed upward until the magazine catch engages.

8. Some soldiers has never chambered a round before.

9. The upper portion of the bolt catch is depressed with the bolt assembly open.

10. A soldier in the squad have pulled the charging handle fully rearward with the bolt assembly closed.

The principal (main) parts of <u>irregular verbs</u> are <u>not formed by any set rules</u>. To learn them, you have to practice, practice, and practice some more!

Many irregular verbs form their past and past participle by <u>a changed letter within the word</u>.

<u>Present</u>	<u>Past</u>	<u>Past Participle</u>
begin	began	have begun
sing	sang	has sung
drink	drank	have drunk
dig	dug	has dug

The past and past participle of some irregular words <u>are alike</u>.

<u>Present</u>	<u>Past</u>	<u>Past Participle</u>
buy	bought	has bought
sleep	slept	have slept
bleed	bled	has bled
dive	dived	has dived

There are some irregular verbs which make <u>no change</u> in the present, the past, or the past participle.

<u>Present</u>	<u>Past</u>	<u>Past Participle</u>
burst	burst	has burst
cut	cut	has cut
hurt	hurt	have hurt
put	put	have put

You will need to <u>memorize</u> the following irregular words:

<u>PRESENT</u>	<u>PAST</u>	<u>PAST PARTICIPLE</u>
am	(was) (were)	have been
become	became	have become
begin	began	have begun
blow	blew	have blown
break	broke	have broken
burst	burst	have burst
choose	chose	have chosen
come	came	have come
dive	dived	have dived
do	did	have done
draw	drew	have drawn
drink	drank	have drunk
drive	drove	have driven
eat	ate	have eaten
ring	rang	have rung
ride	rode	have ridden

PRESENT	PAST	PAST PARTICIPLE
fall	fell	have fallen
fight	fought	have fought
flee	fled	have fled
fly	flew	have flown
forget	forgot	have forgotten
freeze	froze	have frozen
get	got	have gotten
go	went	have gone
grow	grew	have grown
hang (clothing)	hung	have hung
hang (a person)	hanged	have hanged
know	knew	have known
lay (to place)	laid	have laid
lead (to guide)	led	have led
lie (to rest)	lay	have laid
lie (to fib)	lied	have lied
raise (to lift)	raised	have raised
rise (to go up)	rose	have risen
run	ran	have run
say	said	have said
see	saw	have seen
sing	sang	have sung
sit	sat	have sat
speak	spoke	have spoken
steal	stole	have stolen
swim	swam	have swum
take	took	have taken
teach	taught	have taught
tear (to rip)	tore	have torn
throw	threw	have thrown
wear	wore	have worn
write	wrote	have written

TROUBLESOME VERB FORMS: MEMORIZE THESE !

has begun	have gone
is broken	should have known
could have come	might have taken
should have done	should have seen
must have eaten	has rung
had fallen	could have thrown
had flown	has ridden

IRREGULAR PAST PARTICIPLE PRACTICE

Instructions: In the first 15 sentences, fill in the blank with the correct principal part of the verb. Remember: YOU MUST USE THE PAST PARTICIPLE WHEN YOU HAVE A HELPING VERB.

        Example: 1. He has ____drunk____ a quart of milk.   DRINK

                "Drink" is the verb. Use the past participle, "drunk", because it has a helping verb, "has."

1.   The compass is _____.   BREAK

2.   She had _____ off the bunker. FALL

3.   They have _____ home already.   GO

4.   It has _____ to rain.   BEGIN

5.   You should have _____ those missiles.   SEE

6.   He could have _____ the grenade higher.   THROW

7.   You should have _____ the answer.   KNOW

8.   We might have _____ it by mistake.   TAKE

9.   Has the bell _____yet?   RING

10.   He should have _____it himself.   DO

11.   You could have _____earlier.   COME

12.   We must have _____ a whole watermelon!   EAT

13.   The birds have all _____ away.   FLY

14.   They had _____ five miles.   SWIM

15.   He had not _____ to his mother lately.   WRITE

Now, in the following 10 sentences, you are given a choice of two verbs. Underline the correct verb with <u>two lines</u>.

        Example: 1. The soldier (drived, <u>drove</u>) the vehicle in the mud.

                "<u>Drove</u>" is the correct past tense of the verb "drive."

16. The vehicle (blew, blowed) a tire during maneuvers.

17. SP4 Jones (swimmed, swam) a record mile in the battalion competition.

18. He (became, becomed) a soldier in order to see the world.

19. The small, courageous nation (fighted, fought) the war by itself.

20. The discouraged factory worker (chose, choosed) not to attend the meeting.

21. During the violent storm, a valuable item (falled, fell) from the shelf.

22. Yesterday I (breaked, broke) the compass I was given.

23. She (drank, drinked) the medicine from the delicate teacup.

24. The M35 2½ ton truck (runned, ran) out of gas.

25. The soldier (threw, throwed) the grenade correctly.

You have learned about the three <u>principal parts</u> of verbs: the present, the past, and the past participle. The most common mistake made is confusing the PAST with the PAST PARTICIPLE.

REMEMBER: THE PAST PARTICIPLE MUST HAVE A HELPING VERB. THE PAST TENSE <u>NEVER</u> HAS A HELPING VERB.

Instructions: Find the verb in the following sentences. Underline it with two lines. It is past. Then, <u>change it to the past participle</u>. Use "have" (plural) or "has" (singular) as the helping verb. Write the new verb on the blank at the end of the sentence. Use your list of irregular verbs if you need to!

Example: Smith <u>went</u> AWOL.   ___has gone___

"Smith" is singular, so you use "has" as the helping verb because it is singular. "Gone" is the part participle of the verb "go."

1. The young recruit fell from the pontoon bridge. _____

2. Of the entire battalion, only A Company passed inspection. _____

3. PFC Jones rode in the back of the jeep. _____

4. They completed the course in record time. _____

5. The separate battalions sent their best men to the meeting. _____

6. She hid the jeep in the underbrush._____

7. Smith began to run faster at PT. _____

8. The CO chose the Soldier of the Quarter. _____

9. We did our best! _____

10. You drove the jeep over the rugged terrain. _____

11. I was the last man in the parade. _____

12. The shrapnel came flying from every direction. _____

Some verbs are troublesome. They need special study.

LIE and LAY

The verb "to lie" means to rest or recline. Its principal parts are "lie," "lay," and "have lain." It never has an object (a word following the verb which answers the question "what" or "whom"). The verb "to lay" means to put or place. Its principal parts are "lay," "laid," and "have laid."

VERB	MEANINGS	EXAMPLES	OBJECT
LIE (lie, lay, has lain, lying)	to stretch out (this word never takes an object)	1. Lie in the shade of the tree.	No object
		2. He lay down for an hour.	No object
		3. No one else has lain there.	No object
LAY (lay, laid, has laid, laying)	to put or place (This word always has an object)	4. Lay the rifles side by side.	Lay what? Rifles
		5. He laid the money on the table.	He laid what? Money
		6. He has laid the rifles in a row.	He has laid what? Rifles

You have the same problem with two other pairs of verbs. One verb in each pair must have a word following it that answers "what"? or "who"? or "whom"? about the verb. That's how you tell which verb to use.

SIT and SET

VERB	MEANINGS	EXAMPLES	OBJECT
SIT (sit, sat, has sat)	to rest (has no object)	1. He sits in the bunker alone.	No object
		2. They sat on the fender of the vehicle.	No object
		3. That food has sat in the hot sun all day.	No object
SET	to put or place	4. He sets the ammo on the desk.	He sets what? The ammo
		5. You set the sergeant straight.	You set whom? The sergeant
		6. Smith has set the platoon record in the hurdle event.	Smith has set what? The record

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VERB	MEANINGS	EXAMPLES	OBJECT
RISE (rise, rose, has risen)	to move higher (has no object)	1. The sun rises on the horizon.	No object
		2. His voice rose above the noise.	No object
		3. I have risen at 6 a.m. every day.	No object
RAISE (raise, raised, has raised)	to make something go up (has an object)	4. Did you raise the flag?	You did raise what? The flag.
		5. I raised the question of extra pay.	I raised what? The question.
		6. He has raised flowers in his spare time.	He has raised what? Flowers

The next four pairs of words often confuse. The MEANINGS of these words are what is important.

VERB	MEANING	EXAMPLES
TEACH	to show how, to give instruction	1. I can teach you about verbs.
		2. You do not learn easily.
LEARN	to find out something	3. I can learn you about verbs. (WRONG!)
MAY	to permit or allow	4. All of you may try to win.
		5. No other soldier can do this correctly.
CAN	to be able	6. Can I go to the movies? WRONG!
LET	to allow or permit	7. Let us help you.
		8. I must leave now.
LEAVE	to go away	9. Leave us help you. WRONG!

	VERB	MEANING	EXAMPLES
BRING and **TAKE**	BRING	to carry <u>toward</u> the speaker	10. <u>Bring</u> me a glass of water.
			11. Please <u>take</u> my coat upstairs.
	TAKE	to carry <u>away</u> from the speaker	12. <u>Will</u> you <u>bring</u> me to the movies? (WRONG!)

It is important that you use these verbs correctly in speaking and writing.
<u>MEMORIZE THEM</u>!

Instructions: In the following sentences decide which verb is correct.
Underline the verb with <u>two</u> lines.

    Example: Yesterday we (<u>lay</u>, laid) in the sun.

        We "stretched out;" you need the verb "to lie."
        "Lay" is the past tense of that verb. Notice that
        there is no object. The verb "to lie" does not
        take an object.

1.   You can't (teach, learn) an old dog new tricks.

2.   Smith (lay, laid) his maps on the sergeant's desk.

3.   He (set, sat) his compass on a flat surface.

4.   We saw the cloud of smoke (raise, rise) in the distance.

5.   The sergeant would not (let, leave) us alone.

6.   He was (laying, lying) in a pool of sweat.

7.   Jones had (taught, learned) the phonetic alphabet in a week of study.

8.   They wouldn't (let, leave) me help with the detail.

9.   The soldiers (set, sat) around the open fire.

10. He (rose, raised) his hand to ask a question.

11. The private (took, brought) me flowers when I was sick.

12. His uncle always (takes, brings) me to the ball game.

The SUBJECT and VERB of a sentence must agree in PERSON and NUMBER. Both the subject and the verb must be singular or BOTH must be plural. Otherwise, the sentence is wrong.

Example: 1.   A <u>soldier</u> <u>has</u> wounds.

"Soldier" is singular; "has" is singular.

2.   Both <u>soldiers</u> <u>have</u> wounds.

"Soldiers" is plural; "have" is plural.

VERBS THAT END IN "S" ARE <u>SINGULAR</u>.   MOST SUBJECTS THAT END IN "S" ARE <u>PLURAL</u>.

The verb "do" can cause you problems. Remember: "Does" is singular; "do" is plural. "Doesn't" is singular; "don't" is plural. Use "does" and "doesn't" for the 3rd person singular (he <u>doesn't</u>). Use "do" and "don't" everywhere else (I <u>do</u>, they <u>don't</u>).

Example: 1.   <u>She</u> <u>doesn't</u> understand the manual.

"She" is 3rd person singular. It agrees with "doesn't."

2.   <u>I</u> <u>don't</u> want to have extra duty.

"I" is 1st person singular. It agrees with "don't."

NEVER SAY "HE DON'T," SHE DON'T," IT DON'T"!!

The subject "You" (whether singular or plural) <u>ALWAYS has a PLURAL VERB</u>.

Example: 1.   <u>Were</u> <u>you</u> late today?   <u>NOT</u> "WAS"!

2.   <u>You</u> <u>were</u> late yesterday too.

Instructions: In the following sentences underline the subject with one line. Underline the verb with two lines. If the subject and verb agree, blacken the "yes" box. If they do not agree, blacken the "no" box.

		Yes	No
Example: 1.	<u>PVT Smith</u> always <u>puts</u> his protective clothing on correctly. (Subject and verb are both singular.)	■	☐
2.	A NATO contamination <u>marker</u> <u>have</u> a triangle shape. (Subject is singular; verb is plural. They do NOT agree.)	☐	■

	Yes	No
1. Pvt Jones digs a hasty hole for minimum protection.		
2. He make the hole armpit deep.		
3. They camouflages their jeep with branches.		
4. You puts on, clears, and checks your protective mask in 9 seconds.		
5. You spot smoke, mist, vapor, or drops.		
6. They doesn't get to shelter in time.		
7. Was the alert siren loud enough?		
8. You uses your shelter half for cover.		
9. Doesn't your mother write you letters?		
10. Don't you approach your position from the rear?		

The words "there" and "here" are <u>never the subject of a sentence</u>. When "there" or "here" is the first word in the sentence, it tells you that the subject will be found <u>somewhere else.</u> <u>Drop "there" or "here" and rearrange the sentence.</u>

    Example: 1. There is an obstacle in the road.
                  (Drop "there" and rearrange the sentence.)
                  (subject) (verb)
          An <u>obstacle</u> <u>is</u> in the road.

          2. There are obstacles ahead.
                  (Drop "there" and rearrange the sentence.)
                  (Subject) (verb)
          <u>Obstacles</u> <u>are</u> ahead.

It is important to find the real subject. It must agree with the verb in NUMBER. Both must be singular (one) or both must be plural (more than one).

Remember: THERE   <u>is</u>, <u>was</u> = SINGULAR   THERE   <u>are</u>, <u>were</u> = PLURAL
                HERE   HERE

Instructions: Cross out "there" or "here." Underline the subject with <u>one line</u>. Decide if the subject is singular or plural. Blacken the correct space. Then, choose the correct form of the verb and underline it with <u>two lines</u>.

	Singular	Plural
Example: H̶e̶r̶e̶ (<u>is</u>, are) the <u>cushion</u> for the chair.	▮	‖

REMEMBER: AN "S" ON A <u>VERB</u> MAKES IT <u>SINGULAR</u>.
             AN "S" ON A <u>SUBJECT</u> MAKES <u>IT</u> <u>PLURAL</u>.

	Singular	Plural
1. There (goes, go) my favorite car down the street.	‖	‖
2. Here (is, are) Pvt Smith and SP4 Davis now.	‖	‖
3. There (was, were) only one marker on the field.	‖	‖
4. There (was, were) no enemy tanks in the distance.	‖	‖

	Singular	Plural
5. Here on the table (is, are) the reports you requested.	||	||
6. Here (comes, come) the heavy artillery.	||	||
7. On sick call, there (was, were) many soldiers with the flu.	||	||
8. There (doesn't, don't) seem to be a sergeant in the orderly room.	||	||
9. There always (is, are) two sides to every story.	||	||
10. Here on the last page (is, are) the correct answer for the problem.	||	||

PRONOUNS take the place of nouns or refer to nouns in the sentence. They are shortcuts for the names of persons, places, and things.

Personal pronouns are used in place of the person speaking (I, me, we, us); in place of the person spoken to (you); and in place of the person spoken about (he, him, she, her, they, them). They are _substitutes_ for nouns. PRONOUNS MAY BE SINGULAR OR PLURAL.

	SINGULAR (ONE)	PLURAL (MORE THAN ONE)
1st person (person speaking)	I, me, my, mine, myself	we, us, our, ours, ourselves

Example: 1. John and I have won the race.
          2. We have won the race.

2nd person (Person spoken to)	you, your, yours	you, your, yours, yourself

Example: 3. You may go if you wish.

3rd person (Person spoken about)	he, him, his, himself, she, her, hers, herself, it, its	they, them, their, theirs, themselves,

4. He can type better than she.
5. They told her to stay home.

"It" doesn't refer to anybody in particular. It is used everywhere to refer to any place or thing.

The word that a pronoun refers to is called the ANTECEDENT of the pronoun. ANTECEDENT is a big word that just means "coming before." The antecedent comes before the pronoun. It is important for you to be able to find the antecedent because the PRONOUN MUST AGREE WITH THE ANTECEDENT IN PERSON AND NUMBER. If the antecedent is singular, you use the singular form of the pronoun. If the antecedent is plural, you use the plural form of the pronoun.

Two or more antecedents connected by "and" need a PLURAL pronoun.

Example: 6. Harry and John lost their way. (not "his")

Two or more singular antecedents connected by OR or NOR need a SINGULAR pronoun.

Example: 7. Either Harvey or John lost his way.

If two antecedents joined by OR or NOR are not in the same person or number, the pronoun must agree with the antecedent closer to it.

Example: 8. Neither we nor John lost his way.
          ("We" is 1st person plural. "John" is 3rd person singular. "His" is 3rd person singular to agree with "John" because "John" is closer to it than "we."

Example: 9. Neither John nor we lost our way.

Instructions: A pronoun is circled in each of the following sentences. Find
its antecedent. Underline the antecedent with one line. Decide if the pronoun
is 1st, 2nd, or 3rd person. Check the correct circle. Then, decide if the
pronoun is singular or plural. Check the correct circle.

	1st	2nd	3rd	Singu-lar	Plural
Example: I need the <u>book</u> but can't find (it.)	0	0	●	●	0
1. The children waited for me to pick (them) up.	0	0	0	0	0
2. Smith is looking for (his) rifle.	0	0	0	0	0
3. Jones brought those manuals home because (they) looked interesting.	0	0	0	0	0
4. I saw the sergeant and gave (him) the money I owed him.	0	0	0	0	0
5. We drove (our) vehicle across the ridge.	0	0	0	0	0
6. I know Smith was there because I saw (her.)	0	0	0	0	0
7. I was pleased that the teacher gave (me) a good grade.	0	0	0	0	0
8. The two soldiers accomplished the mission by (themselves.)	0	0	0	0	0
9. "Soldiers, may I welcome (you) to the Army!"	0	0	0	0	0
10. I lost (my) weapon for a short time.	0	0	0	C	0

Pronouns are short cuts for names of persons, places, and things. You learned about them in earlier Activity Sheets. They can be used as the subject of a sentence. They must agree in NUMBER with the verb in the sentence.

1. THESE PRONOUNS ALWAYS HAVE A SINGULAR VERB WHEN THEY ARE THE SUBJECT OF THE SENTENCE:

another	either	nobody
anybody	everybody	one
anyone	everyone	somebody
each	neither	someone

    Example: Everyone is late for formation.
              "Everyone" is singular; "is" is singular.

2. THESE PRONOUNS ALWAYS HAVE A PLURAL VERB:

both	many	several
few	others	

    Example: Several were late for formation.
              "Several" is plural. "Were" is plural.

3. CERTAIN PRONOUNS MAY HAVE EITHER A SINGULAR VERB OR A PLURAL VERB. IT DEPENDS ON THE MEANING OF THE SENTENCE.

all	none
any	some

    Example: 1. Some of the pie was eaten.
              2. Some of the pies were eaten.

              In Example 1, a part of one pie was eaten. In Example 2, more than one pie was eaten. "Some" is singular in #1 and plural in #2.

Instructions: Underline the pronoun that is the subject with one line. Choose the correct verb. Underline it with two lines. Refer to the rules!
Remember: AN "S" MAKES A VERB SINGULAR!

              Example: 1. Nobody in the company (wants, want) to leave.

1. Everybody (has, have) to do his share of the work.

2. Then nobody (suffers, suffer).

3. Few (knows, know) the kind of person he really is.

4. Both (understands, understand) the burden he carries.

5. One of the men (is, are) sick.

6. Many of the packages (was, were) opened.

7. Anyone in the squad (has, have) the same opportunity.

8. All of the mistakes (was, were) my fault.

9. Every night all of the water (disappears, disappear).

10. Others (is, are) better at PT.

You learned about INDEFINITE PRONOUNS on Activity Sheet 18A. An
indefinite pronoun does not define or stand for a particular person or thing.

The following <u>indefinite</u> pronouns are SINGULAR.

everybody	someone	either	no one
everyone	each	neither	a person
anyone	nobody	one	many <u>a</u>

The personal pronouns that refer to them must be SINGULAR in number also.

<div style="text-align:center">

(Antecedent)
Example: <u>Everyone</u> brought <u>his</u> own lunch.
(not <u>their</u>)

(Antecedent)
<u>Each</u> of the girls wants <u>her</u> own way.
(not <u>their</u>)

</div>

PLURAL indefinite pronouns must have a PLURAL personal pronoun that refers
to it. The following indefinite pronouns are PLURAL:

several	few	all
both	many (without <u>a</u>)	

You must use PLURAL personal pronouns with them.

<div style="text-align:center">

(Antecedent)
Example: <u>All</u> of the girls want <u>their</u> way.

</div>

Instructions: In the following sentences, circle the antecedent. Then underline
with one line the pronoun that agrees with it in number.

Example. If (anyone) cares to leave, (<u>he</u>, they) may do so now.

1. One of the men forgot (his, their) book.

2. Several of the soldiers brought (his, their) own weapons.

3. Few in the crowd raised (their, his) hand to volunteer.

4. Will everyone please help (themselves, himself)?

5. Nobody ever learns all that (he, they) should.

6. Many a troop has been known to forget (his, their) rucksack.

7. Everybody knows (their, her) way down the ridge.

8. Someone always displays (his, their) courage in the midst of battle.

9. Each in the company knows exactly what (they, he) wants.

10. Anyone who has the time may have (his, their) leave verified.

In Activity Sheet 6A, you learned that collective nouns are words that are singular, but suggest more than one person. You were learning about subject-verb agreement on that activity sheet.

When a COLLECTIVE NOUN is the <u>antecedent</u>, the pronoun that refers to it must be SINGULAR to agree with the noun. The pronouns "IT" and "ITS" are used when referring to collective nouns. Use "they" or "their" only when referring to <u>Plural</u> collective nouns.

Example: 1. Society must protect (<u>its</u>, their) members
from violence.
("Society" is the collective noun. It is
singular. "Its" is singular.)

2. Schools give (its, <u>their</u>) employess annual
sick leave.
("Schools" is the collective noun. It
is plural [more than one school]. "Their"
is plural.)

Instructions: In the following sentences, circle the collective noun that is the antecedent. Underline the correct pronoun with one line.

Example: 3. The (committee) sent (<u>its</u>, their) request to
the colonel.

1. The squad made (their, its) quota in record time.

2. The small nations survived the collapse of (their, its) armies.

3. That Indian tribe has (their, its) reservation on government land.

4. His college is having (their, its) annual reunion next week.

5. The classes took (their, its) finals last week.

6. My family gave (their, its) approval of my choice.

7. The swim team won the ribbon from (their, its) competition.

8.   We saw the herd of cattle heading toward (their, its) barn.

9.   Our school had (their, its) winning record broken.

10.   The federal government always spends (their, its) money wisely.

> This is a practice page. It lets you practice what you learned on Activity Sheets 17A through 20A.

Instructions: Underline the correct pronoun to complete the meaning of each sentence.

        Example: Company A did (their, <u>its</u>) best.
                  (The antecedent of the pronoun is "Company A."
                  "Company A" is a singular collective noun. <u>Its</u> is
                  singular; <u>their</u> is plural. Underline <u>its</u>.)

1.   Either the men or the women left (her, their) weapons unattended.

2.   The baby sparrow lost (his, its) wing.

3.   Every infantryman must bring (his, their) personnel file to the
       Education Center.

4.   Yesterday someone arrived late for (his, their) outbriefing.

5.   All of the design lost (its, their) color on the transfer.

6.   No one in the unit completed (his, their) task in the allotted time.

7.   They expect everyone to do (their, his) share of the work.

8.   Neither the other soldiers nor he received the score (they, he) deserved.

9.   Many a commander has wished that (their, his) unit would operate smoothly.

10.   To everyone's relief, nobody spotted enemy fire through (his, their)
       field glasses.

11.   Our nation would aid (their, its) neighbors in time of war.

12.   Smith and Jones were courteous as they expressed (their, his) ideas
       on the subject.

13.   Jones was relieved from duty because of circumstances beyond (her, its) control.

14.   The vibrating engine finally fell from (its, their) motor mounts.

15.   Each of the soldiers was told to select (his, their) probable position.

16.   One of the children plucked a splinter from (their, his) finger.

17.   Either he or they would improve (his, their) scores considerably.

18.   Jones or Smith could not find (his, their) first aid kit.

19.   Our army furnished (their, its) men with all the proper equipment.

20.   Everybody was asked to regulate the volume of (their, his) radio.

Pronouns have different forms depending on the work they do in the sentence.

You use some pronouns <u>only</u> as the subject of the sentence or following a linking verb.

PRONOUNS WHICH ARE USED ONLY AS SUBJECTS OR FOLLOWING A LINKING VERB:

	Singular	Singular or Plural	Plural
1st person	I	Who	We
2nd person	You		You
3rd person	He, She, or It		They

Examples: 1. <u>She</u> gave the book to John.
                ("She" is the subject.)

           2. It was <u>I</u> who asked the question.
               ("I" follows the linking verb "was.")

These nine pronouns can be used <u>only</u> as the subject of the sentence or after a linking verb!

Instructions: Underline the subject pronouns. Decide if the subject pronouns in the following sentences are used correctly (as a subject or after a linking verb). If they are correct, mark "Yes." If they are not correct, mark "No."

		<u>Yes</u>	<u>No</u>
Examples: 1. Jones sent the required material through channels to <u>he</u>. ("He" is a subject pronoun. But it is not used as the subject and it does not follow a linking verb in this sentence, so the sentence is incorrect.)		0	●
2. That was <u>they</u> at the door. ("They" is a subject pronoun. It is used in this sentence after a linking verb, so the sentence is correct.)		●	0

1. We enlisted men need someone to represent us.   0   0

2. The first sergeant gave I a lecture on   0   0
       saluting properly.

3. To they, the ceremony was the best portion of the show.   0   0

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Name _____

		Yes	No
4.	I promised him a second chance to qualify.	0	0
5.	The sergeant discouraged Jones and I from reenlisting.	0	0
6.	Smith asked she a marvelous question about driving vehicles.	0	0
7.	The platoon leader told Smith and he to lead the attack.	0	0
8.	After the maneuver was completed, you and Jones were exhausted.	0	0
9.	The winners of the marching event were they.	0	0
10.	The squad leader made we and them climb to the top of the ridge.	0	0

You learned on Activity Sheet 3A that some verbs have an OBJECT. An OBJECT is a word that answers the question WHOM? or WHAT? PRONOUNS CAN BE USED AS THE OBJECT OF THE VERB.

PRONOUNS WHICH CAN BE USED AS OBJECTS OF VERBS:

	Singular	Singular or Plural	Plural
1st person	ME	WHOM	US
2nd person	YOU		YOU
3rd person	HIM, HER, IT		THEM

REMEMBER, OBJECTS MUST FOLLOW AN <u>ACTION</u> VERB

Examples: 1. I hit <u>him</u>.
("Hit" is an action verb. "Whom" did "I" hit? <u>Him</u>. "Him" is the object.)

2. I know Bob was there because I saw <u>him</u>.

Pronouns used as objects also have ANTECEDENTS. (See Activity Sheet 17A.) In Example 2, the pronoun "him" refers to "Bob." "Bob" is the ANTECEDENT. "Bob" is 3rd person singular. "Him" is 3rd person singular. They agree in person and number.

Instructions: Underline the object pronouns. Decide if they are used correctly. If they are correct, mark "Yes." If they are not correct, mark "No."

		<u>Yes</u>	<u>No</u>
Examples: 1.	Jones and <u>me</u> walked the entire course in combat boots. ("Me" is used as the subject. Object pronouns can NOT be used as subjects. Mark "No.")	O	●
2.	The sarge asked <u>me</u> a question. ("Me" comes as an object after an action verb. It has an antecedent, "sarge." It is correct.)	●	O
1.	The grenades were thrown by Jones and them.	O	O
2.	Me and Jones received permission to attend school this cycle.	O	O

Name _____

		Yes	No
3.	Smith likes Jones better than Jones likes her.	0	0
4.	Him and the sarge have become close friends.	0	0
5.	The speaker told us listeners to pay special attention.	0	0
6.	The best soldier is him who tries the hardest.	0	0
7.	Them know that breathing is very important in the firing of the .38 caliber revolver.	0	0
8.	The manual instructed her to grip the revolver after forming a "V" with the thumb and forefinger of the firing hand.	0	0
9.	If a stoppage occurs in an M60 machinegun, us soldiers pull the cocking handle to the rear.	0	0
10.	Jones and me assumed a stable, prone firing position to get ready to fire the M60.	0	0

> This is a practice page to help you review what you learned on Activity Sheets 22A and 23A.

Instructions: Decide whether the sentence should have a <u>subject pronoun</u> or an <u>object pronoun</u>. Blacken the correct space at the end of the line. Then underline the correct pronoun with one line.

		Subject Pronoun	Object Pronoun
Examples:			
1.	(<u>We</u>, Us) will attend the meeting. (The pronoun acts as the <u>subject</u> of the sentence. "We" is a subject pronoun. "Us" is an object pronoun. Underline "We.")	●	O
2.	The military police chased Andrews and (she, <u>her</u>). (The pronoun is used as an <u>object</u> in this sentence. "She" is a subject pronoun. "Her" is an object pronoun. Underline "her.")	O	●

		Subject	Object
1.	(Him, He) and (me, I) go to chow together.	O	O
2.	SGT Jones asked Smith and (I, me) to do him a favor.	O	O
3.	By 7:30, Jones and (he, him) had finished PT.	O	O
4.	(Them, They) received much praise after the deployment.	O	O
5.	That spoiled food made Smith and (he, him) sick.	O	O
6.	The star helped (me, I) with my lay-up shots.	O	O
7.	The sergeant and (her, she) got on each other's nerves.	O	O
8.	Why don't you give (us, we) short people a chance to play basketball?	O	O
9.	It's (me, I) you want to see.	O	O
10.	(Them, They) and (us, we) should try to get along better.	O	O
11.	(Who, Whom) shall we invite?	O	O

	Subject Pronoun	Object Pronoun
12. (Who, Whom) is at the door?	0	0
13. The colonel met Jones and (I, me) at the door.	0	0
14. The recruiter sold (they, them) a bill of goods.	0	0
15. (Her, She) told me to leave at once.	0	0
16. I phoned both recruits, Smith and (him, he).	0	0
17. That was (they, them) I saw on the vehicle.	0	0
18. (Her, She) and her brother enlisted together.	0	0
19. They invited the winners and (I, me) to the celebration.	0	0
20. The platoon leader told (we, us) men to follow him.	0	0

A PREPOSITION is a word which joins a noun or a pronoun to another word in the sentence. It shows the relation between the two words. It describes <u>direction</u> or <u>place</u> or <u>time</u>.

Example: 1. The sergeant sat <u>with</u> the troops.
("With" is the preposition. It shows the relationship between "sergeant" and "troops.")

Every preposition must have a noun or pronoun as its OBJECT. You learned about OBJECTS on Activity Sheet 3A . If a pronoun follows a preposition, it <u>must</u> be one of the following pronouns:

	<u>Singular</u>	<u>Plural</u>
1st Person	ME	US
2nd Person	YOU	YOU
3rd Person	HIM, HER, IT	THEM

These are the same pronouns that you use as the OBJECT of the verb. See Activity Sheet 23A. YOU NEVER USE THESE PRONOUNS AS THE SUBJECT OF THE SENTENCE or AFTER A LINKING VERB!

Some of the prepositions you often use are:

to	at	around	up	across	except
for	near	between	upon	behind	from
with	by	among	through	off	
in	on	beside	past	of	

Instructions: In each of the following sentences, circle the preposition. Then choose the correct pronoun. Underline it with one line.

Example: 1. (Between) you and (I, <u>me</u>), he chose you.
("Between" is a preposition. "Me" is the object of the preposition.)

1.   Give the same to both him and (I, me).

2.   Everybody seemed happy except (she, her) and her sister.

3.   On the way home, I sat between (he, him) and her.

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4. He told his life story to Smith and (I, me).

5. Our tanks were behind (they, them).

6. It arrived among (they, them) during practice.

7. The splinter was plucked from my finger by (she, her).

8. The mission was completed with help from the soldiers and (I, me).

9. The entire enemy camp seemed to be all around (we, us).

10. Between you and (I, me), I think you're the better marksman.

POSSESSIVE PRONOUNS are pronouns that show OWNERSHIP. They tell you who or what owns a thing.

Example: 1. That rifle is <u>mine</u>.
("Mine" tells who owns the rifle or has possession of it.)

PRONOUNS THAT SHOW OWNERSHIP

	<u>Singular</u>	<u>Plural</u>
1st Person	MY, MINE	OUR, OURS
2nd Person	YOUR, YOURS	YOUR, YOURS
3rd Person	HIS, HERS, ITS	THEIR, THEIRS
	HER	

DO NOT USE AN APOSTROPHE IN A POSSESSIVE PRONOUN!

Example: 2. That rifle is <u>hers</u>. (<u>Not</u> her's.)

You need to be aware of a few other pronouns. Some pronouns end in -self or -selves. The important thing to remember about these pronouns are:

I. THEIRSELVES IS NOT A WORD! The correct word is THEMSELVES.

1. They went by <u>themselves</u>.

II. HISSELF IS NOT A WORD! The correct word is HIMSELF.

2. He kept the money for <u>himself</u>.

III. OURSELF IS NOT A WORD! The correct word is OURSELVES.

3. John and I wanted it for <u>ourselves</u>.

Instructions: Underline the correct pronoun with one line.

1. If that uniform is not ours, it must be (their's, theirs).

2. They can hurt (themselves, theirselves) with the wrong equipment.

3. That hat on the counter is (your's, yours).

4. He can do the work by (hisself, himself).

5. We had the entire house to (ourself, ourselves).

6. The paint on the vehicle showed (it's, its) blisters after a week on the desert.

7. Finally, we can say one of (our's, ours) won a medal.

8. (Who's, Whose) watch has the correct time?

9. (Her's, Hers) is next to mine.

10. You keep the information to (yourselfs, yourselves).

Three little words which are very often used as PRONOUNS are WHO, THAT, and WHICH. They have special uses.

| WHO | refers to persons.

Example: The soldier who ran fast won the race.
("Soldier" is a person.)

| THAT | refers to persons or things or animals.

Examples: 1. The maneuver that he watched lasted one hour.
("Maneuver" is a thing.)

2. Any recruit that wants to may reenlist.
("Recruit" is a person.)

3. The dog that bit him had rabies.
("Dog" is an animal.)

| WHICH | refers to things and animals.

Examples: 1. The vehicle which lost its wheel finally arrived

back at headquarters.
("Vehicle" is a thing.")

2. That is not the dog which bit him.
("Dog" is an animal.)

MEMORIZE!

WHO	PERSON
THAT	PERSON/THING/ANIMAL
WHICH	THING/ANIMAL

"WHICH" NEVER REFERS TO PERSONS.

"THAT" IS CORRECT IN EVERY SENTENCE.

Instructions: Underline WHO, THAT, or WHICH in the following sentences. If it is used correctly, mark "Yes." If it is not used correctly, mark "No." Then put the correct word on the line. Remember, if it is correct in the sentence you don't have to put a new word on the line.

Yes   No

Example: Is he the drill sergeant which
you questioned?   who

		Yes	No

1. The unit that satisfies its soldiers gets the
   most work done. _____   ☐   ☐

2. The newspaper who prints the truth may get
   more subscribers. _____   ☐   ☐

3. The design that was chosen was the most colorful
   of all. _____   ☐   ☐

4. Was it your dog who aided in the
   rescue mission? _____   ☐   ☐

5. My friend which lives behind me has gone
   on vacation. _____   ☐   ☐

6. The soldier that works hard will get a
   three-day pass. _____   ☐   ☐

7. He reduced the number of casualties which
   might have occurred. _____   ☐   ☐

8. He was told to postpone the trip which he
   had planned. _____   ☐   ☐

9. Any ordinary person which reads the want ads
   can find a job. _____   ☐   ☐

10. The raccoon who had rabies was
    killed._____   ☐   ☐

You have already learned some things about the words WHO, WHICH, and THAT on Activity Sheet 27A. Now you will learn more that will help you use English better.

You have learned that the subject and verb in a sentence must <u>agree</u> in person and number. But in <u>questions</u> sometimes it is hard to find the subject.

Example: 1. Who is the <u>owner</u> of this dog?

The subject of this sentence is "<u>owner</u>," not "<u>who</u>."
In a question, if you get confused about what the subject is, turn the sentence around:

"Who is the owner of the dog"?
"The <u>owner</u> of the dog is..."

Then the subject comes at the beginning. It is easier to find it and to make it agree with the verb. "Owner" and "is" are both singular. They agree.

WHO, WHICH and THAT are also pronouns that have <u>antecedents</u> somewhere else in the sentence.

Example: 2. I know a person <u>who</u> plays professional basketball.

"Who" is the pronoun; it relates to the word "person."
"Person" is the antecedent. "Person" is singular.
So the verb "plays" is singular to agree with "person."

Example: 3. Dogs <u>that</u> bite make me nervous.

"That" is the pronoun. "Dogs" is the antecedent.
"Dogs" is plural. So "bite" is plural to agree with "dogs."

Instructions:

(1) In the following sentences, the pronoun is underlined. Circle the subject. Then underline the correct verb with two lines.

Examples: <u>Which</u> (is, <u>are</u>) your (slippers?)

<u>What</u> (<u>is</u>, are) your (name?)

1. <u>Who</u> (is, are) the students in your class?

2. <u>What</u> (has, have) the sergeant done to you now?

3. <u>Which</u> (is, are) the tests you need to take?

Name _____

(2) Now, circle the antecedent. Then underline the correct verb with two lines.

Examples: Always take (jobs) that (looks, <u>look</u>) difficult.

(People) who (lives, <u>live</u>) in glass houses shouldn't throw stones.

4. Our brother likes music <u>that</u> (<u>helps</u>, help) him relax.

5. I don't trust anyone <u>who</u> (<u>promises</u>, promise) to solve all my problems.

6. Don't chase any animals <u>that</u> (<u>appears</u>, appear) frightened.

7. The general likes soldiers <u>who</u> (wears, <u>wear</u>) their uniforms correctly.

8. The soldier <u>who</u> (<u>qualifies</u>, qualify) as an "expert" on his weapon will receive a commendation.

9. Azimuths, <u>which</u> (is, <u>are</u>) used in land navigation, require a lensatic compass.

10. On a map, the area <u>that</u> (<u>looks</u>, look) like an hourglass or a figure eight is a saddle.

An ADJECTIVE is a word that tells you something about a noun. Remember that a _noun_ names a person, place, or thing. The adjective usually answers one of these questions:

WHAT KIND?	WHICH ONE?	HOW MANY?
physical fitness	_that_ exercise	HOW MUCH?
		some sweat

Every day you COMPARE things. Your CO compares the performance of the companies. The sergeant compares the behavior of the soldiers. You compare the leadership of the sergeants. In the same way, ADJECTIVES may be compared.

The COMPARATIVE degree is used to compare _TWO_ persons or things. You make the comparative degree in different ways, depending on the length and ending of the adjective.

1. IF THE ADJECTIVE HAS ONLY ONE SYLLABLE, YOU JUST ADD -ER TO IT.

> Example: 1. Sp 4 Smith is a tall soldier.
>   2. Sp 4 Smith is tall_er_ than Pvt Jones.
>   ("Tall" has one syllable. Add _-er_.
>   MOST adjectives add _-er_ to form the comparative.)

2. IF THE ADJECTIVE HAS MORE THAN ONE SYLLABLE AND ENDS IN -Y, CHANGE THE Y TO I AND ADD -ER.

> Example: 1. He has a _nasty_ temper.
>   2. He has a _nastier_ temper than she does.

3. IF THE ADJECTIVE HAS MORE THAN ONE SYLLABLE AND DOES _NOT_ END IN Y, YOU MUST ADD "_LESS_" OR "_MORE_" IN FRONT OF IT. _DO NOT_ ADD -ER TO THE END.

> Example: 1. He has a _beautiful_ stereo system.
>   2. He has a _more_ beautiful stereo system than I.
>   ("Beautiful" has three syllables. Use "more."
>   Don't say "_beautifuler_"!

The SUPERLATIVE degree is used to compare _THREE OR MORE_ persons or things.

1. IF THE ADJECTIVE IS ONLY ONE SYLLABLE LONG, ADD -EST

> Example: Sp 4 Smith is the _tallest_ in the squad.
>   (Sp 4 Smith is being compared to all soldiers in the squad.)

2. IF THE ADJECTIVE IS MORE THAN ONE SYLLABLE LONG AND ENDS IN -Y, CHANGE THE Y TO I AND ADD -EST.

> Example: He is a _lucky_ soldier.
>   He is the _luckiest_ soldier in the Army.

3. IF THE ADJECTIVE IS MORE THAN ONE SYLLABLE LONG AND <u>DOES NOT</u> END IN -Y, USE "<u>LEAST</u>" OR "<u>MOST</u>" IN FRONT OF IT. <u>DO NOT</u> ADD -EST TO THE END.

Example: He has the <u>most beautiful</u> stereo system in the barracks. (His stereo system is being compared to all the stereo systems in the barracks. Don't say "<u>beautifulest</u>"!

<u>MEMORIZE</u>!

I. Adjectives of one syllable add -er or -est.

old   older   oldest

II. Adjectives that end in -y, change -y to -i, and add -er or -est.

ugly   uglier   ugliest

III. Adjectives of more than one syllable use more or most.

interesting   more interesting   most interesting

There are just a few everyday words that <u>do not</u> follow the rules. You must learn these by heart!

	<u>COMPARATIVE</u>	<u>SUPERLATIVE</u>
good	better	best
bad	worse	worst
little	less	least
much	more	most
some	more	most
many	more	most

Examples: 1. He has <u>good</u> control of his weapon.
           2. You have <u>better</u> control than he does.
           3. I have the <u>best</u> control of all.

           <u>NEVER</u> SAY "MORE BETTER" -- SAY "BETTER"!

Instructions: Underline the correct adjective in the following sentences with two lines.

Example: 1. He has the (lesser, <u>least</u>) control.

1. The (larger, largest) of the two men carried the extra rucksack.

2. After the battle ended, no one knew who had been the (more, most) courageous in the platoon.

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3.   Of all the units, his had the (slimmer, slimmest) chance of surviving
     another attack.

4.   Smith's reaction to the explosion was (normaler, more normal) than his
     friend's outburst.

5.   He told the (more, most) humorous story of the evening.

6.   The speaker on tactics was the (more, most) courteous of the two men
     on the platform.

7.   Smith is (more clumsy, clumsier) than Jones.

8.   The foliage is (more dense, denser) at the edge of the ridge.

9.   He was told to find the (more advantageous, most advantageous) position
     in the area for a lookout.

10. She was the (more sensible, sensibler, most sensible) of the three recruits.

11. Jones had little money, but Smith had even (less, lesser) than that.

12.   Smith had a bad burn from the chemical but Jones had the (baddest, worst)
     burn of all.

13. The sergeant was good at his job, maybe even the (bestest, best).

14. He would try to do a (more better, better) job in the future.

15. I feel (worse, worser, worst) about the foul-up than you do.

THIS/THAT and THESE/THOSE are adjectives that point out, or call attention to, nouns.

Use <u>THIS</u> and <u>THAT</u> to tell about <u>ONE</u> object.

Example: 1. <u>This</u> nation is the greatest in the world.

Use <u>THESE</u> and <u>THOSE</u> to tell about <u>MORE THAN ONE</u> object.

Example: 1. <u>Those</u> sources of information are quoted in the newspaper.

Use <u>THIS</u> and <u>THESE</u> when you point out things <u>NEAR</u> to the speaker.

Example: 1. <u>These</u> papers in my hand are the requested ones.

Use <u>THAT</u> and <u>THOSE</u> when you tell about things <u>FAR AWAY</u> from the speaker.

Examples: 1. <u>That</u> look on his face expressed all of his doubts.

          2. <u>Those</u> maps on the wall show depressions with brown
                  contour lines.

THIS ----- singular, near
THAT ----- singular, far away
THESE ---- plural, near
THOSE ---- plural, far away

There are certain mistakes that you can make with these adjectives if you're not careful.

1. Never use THEM in place of THOSE.

    Examples: Put <u>them</u> books on the table. ---- WRONG
               Put <u>those</u> books on the table. --- RIGHT

2. Never use THIS HERE or THAT THERE. Use THIS or THAT.

    Examples: I bought <u>this here</u> coat at the store. ----- WRONG
               I bought <u>this</u> coat at the store. ----- RIGHT

Instructions: Underline the correct word in the following sentences with two lines.

Example: 1. (<u>This</u>, Those) kind of vehicle frequently needs repair.
              "<u>Kind</u>" is singular; "this" is singular. They agree.

Grammar
Activity Sheet 30A
Adjectives: This/That   These/Those   Name _____

1. (This here, That) distant puff of smoke indicates artillery ahead.

2. He understood only (those, that) portions of the manual about his MOS.

3. I can't tell what (that there, this) substance is in my coffee.

4. (This, These) kinds of circumstances are often misunderstood.

5. Most of (those, these) answers that he gave are correct.

6. (That, Those) kind of offer doesn't come along every day.

7. (That, Those) items on the checklist were not accounted for.

8. (This, Those) fatigues need a good washing.

9. They commenced (this here, that) search for the lost patrol last night.

10. (That, These) kind of conclusion is what we're trying to avoid.

Adverbs are words that modify or tell about a verb, an adjective or another adverb. They usually answer the question <u>when</u>? <u>where</u>? or <u>how</u>? about the word they're modifying.

Examples: 1. He came <u>late</u>.
(<u>When</u> did he come? Late. "Late" is the adverb.)

2. He sat <u>down</u>.
(<u>Where</u> did he sit? Down. "Down" is the adverb.)

3. He is <u>very</u> tired.
(<u>How</u> tired is he? <u>Very</u> tired. "Very" is the adverb.)

MANY ADVERBS END IN -LY. AN -LY ENDING IS A SIGNAL THAT A WORD PROBABLY IS AN ADVERB.

Example: The child sleeps peaceful<u>ly</u>.
("Peacefully" ends in -LY. It is an adverb.)

You can use adverbs to compare things the same way you use adjectives. (See Activity Sheet 29A). All adverbs that end in -LY use <u>more</u> in front of them to form the COMPARATIVE degree, for comparing two persons or things. Other adverbs add -er.

Examples: 1. You run <u>more quickly</u> than I.
2. You run <u>faster</u> than I.

All adverbs that end in -LY use <u>MOST</u> in front of them to form the SUPERLATIVE, for comparing three or more persons or things. Other adverbs add -est.

Examples: 1. You run the <u>most quickly</u> of anyone in the platoon.
2. You run the <u>fastest</u>.

Some <u>irregular adverbs</u> don't follow the rules.

You make the <u>comparative</u> and <u>superlative degrees</u> of these irregular adverbs as follows:

REGULAR	COMPARATIVE	SUPERLATIVE
far	farther	farthest
little	less	least
some	more	most
well	better	best
badly	worse	worst

Instructions: Choose the correct word. Underline it with two lines.

Example: I ran (more farther, <u>farther</u>) than you.

If you use the -er ending, you do not need to use MORE in front of the adverb.

1.   He would try to do (more better, better) in the future.

2.   The vehicle turned the corner (slow, slowly).

3.   Smith drives (more carefully, carefullier) than Jones.

4.   He is the (most, more) highly trained in the unit.

5.   Don't you think we drilled (more better, better) last cycle?

6.   Of the three sergeants, I like Smith (better, best).

7.   The terrain here is (prettier, more pretty) than it was there.

8.   The recruit behaved (more badly, worse) than the old-timer in a tight situation.

9.   The private reacted (more, most) courageously than the sergeant when the
     going got tough.

10. He (more clumsy, clumsily) knocked over the last canteen of water.

You have already learned on Activity Sheets 29A and 31A that <u>adjectives modify nouns</u> and <u>adverbs modify verbs, adjectives, or other adverbs</u>.

Most adjectives can be <u>changed into adverbs</u> by adding -ly.

Examples: 1: He gave the slow soldier a <u>forceful</u> shove.

                2. He shoved the slow soldier <u>forcefully</u>.

                  In Example 1 "forceful" is an adjective. In Example 2, "forcefully" is an adverb.

The point of studying English is to be able to use it correctly. Since some adverbs and adjectives look alike, you must be careful not to <u>force</u> an adjective to do the work of an adverb.

    1. ADJECTIVES usually come <u>before</u> the noun they modify.

                      adjective   noun
        Example: 1. He is a <u>real</u> friend.

    2. But an ADJECTIVE may follow a LINKING VERB (Activity Sheet 8).

                     noun   adjective
        Example: 1. His friendship is <u>real</u>.

    3. ADVERBS modify <u>verbs</u> most of the time. But they <u>may</u> modify adjectives or other adverbs.

                      adverb adjective
        Examples: 1. He is a <u>really</u> nice friend.
                  ("Really" is an adverb telling <u>how</u> nice.)

                      adverb   adverb
            2. He is going <u>really</u> fast.
                ("Really" tells <u>how</u> fast. "Fast" tells how he is going.)

    4. ADVERBS modify ACTION VERBS.

        Example: 1. He eats <u>sensibly</u>.
                (The adverb "sensibly" modifies the action verb "eats.")

    5. <u>GOOD</u> is an adjective that follows a <u>linking verb</u> such as <u>be</u>, <u>look</u>, <u>taste</u>, <u>smell</u>, <u>feel</u>, <u>sound</u>, <u>appear</u>, <u>seem</u>, <u>grow</u>, or <u>become</u>.

        Examples: 1. The food tastes <u>good</u>.
                2. Those records sound <u>good</u>.

    6. <u>WELL</u> is an adverb. It describes <u>action</u> and follows an <u>action verb</u>.

        Examples: 1. They march very <u>well</u>.
                2. He swims <u>well</u>.

> 7. Several other adjectives are commonly misused as adverbs: <u>real</u>, <u>sure</u>, <u>most</u>, and <u>near</u>.
>
> Examples: 1. I was <u>really</u> (not <u>real</u>) angry with Smith.
>   2. You were <u>surely</u> (not <u>sure</u>) early today.
>   3. He scored a basket <u>almost</u> (not <u>most</u>) every time.
>   4. I <u>nearly</u> (not <u>near</u>) missed the bus.

Instructions: You are given a choice of an adverb and an adjective in the following sentences. Decide which is correct in that sentence. Underline it with <u>one</u> line.

> Example: 1. Diet soda tastes too (<u>sweet</u>, sweetly) for me.
>   ("Tastes" is a linking verb. You need an adjective.
>   "Sweet" is an adjective.)

1.   Don't you think he dances (good, well)?

2.   She feels (badly, bad) when you shout at her.

3.   The soldier handles the grenade (careful, carefully).

4.   The parade field looks (beautiful, beautifully).

5.   We (sure, surely) had a fine time over the weekend.

6.   She (most, almost) ate all of her rations before dinner.

7.   I can't walk (good, well) because my leg hurts.

8.   His wounded leg hurt quite (bad, badly) as he ran.

9.   The prices were too (cheap, cheaply) to believe.

10. They always treat us (well, good).

11. He has a (good, well) attitude about soldiering.

12. Parachute cloth feels slippery and (smoothly, smooth).

13. The river rushed (strong, strongly) down the slope.

14. You look sloppy when you dress (carelessly, careless).

15. I am (real, really) sorry to have disturbed you.

A PREPOSITION is a word used to show how a noun or pronoun is <u>related</u> to another word in the sentence. You were introduced to them on Activity Sheet 5A when you learned about finding the subject of a sentence.

By using different prepositions, you change the meaning of the sentence. You must learn to use the correct word in the correct place.

Learn to use these prepositions in the right way!

```
┌─────────┐
│   IN    │
│   and   │
│  INTO   │
└─────────┘
```

1. He dived <u>into</u> the water.
    (He was out of the water and then he jumped into it.)

2. He dived <u>in</u> the water.
    (He was already standing in the water when he dived.)

Use <u>INTO</u> when you mean movement from one place to another.

```
┌─────────┐
│ BETWEEN │
│   and   │
│  AMONG  │
└─────────┘
```

3. Divide this box of ammo <u>between</u> Smith and Jones.
    (For <u>two</u> persons or things, use "between.")

4. Divide this box of ammo <u>among</u> the squad.
    (For <u>three or more</u> persons or things, use "among.")

```
┌─────────┐
│  FROM   │
│   and   │
│   OFF   │
└─────────┘
```

5. I will borrow the fatigues from the sergeant.
    (The sergeant will hand you the fatigues. He may
     not be wearing them.)

6. Take the fatigues <u>off</u> the sergeant.
    (You will remove them or help him because he is
     wearing them.)

7. I borrowed the fatigues <u>off</u> the sergeant.
    (WRONG!)

8. He stood <u>beside</u> his bunk.
    ("Beside" means "next to" or "close to.")

```
┌─────────┐
│ BESIDE  │
│   and   │
│ BESIDES │
└─────────┘
```

9. Two soldiers, <u>besides</u> the sergeant, received letters of
    commendation.
    ("Besides" means "in addition to.")

10. <u>Besides</u> his bunk was a trunk.
    (WRONG!)

Sometimes you put extra prepositions where they are not needed. Leave them out!
Never put a preposition at the end of a sentence!

11. I wonder where he is <u>at</u>. WRONG

     I wonder where he is. RIGHT (omit <u>at</u>)

12. He fell off _of_ the chair. ----- WRONG!
     He fell off the chair. ----- RIGHT! (omit _of_)

13. In which bed will I sleep _in_? ----- WRONG!
     In which bed will I sleep? ----- RIGHT! (omit _in_)

14. To whom should I give this _to_? ----- WRONG!
     To whom should I give this? ----- RIGHT! (omit _to_)

15. For what is he crying _for_? ----- WRONG!
     For what is he crying? ----- RIGHT! (omit _for_)

You need to remember one last thing. Never use _OF_ in place of _HAVE_!

16. You should _of_ come to the party. ----- WRONG!

17. You should _have_ come to the party. ----- RIGHT!

Instructions: Some of the following sentences have mistakes in them. If a
sentence has a mistake, underline the incorrect word with one line. Correct
it on the line at the end of the sentence. Then mark "Wrong" in the box at
the end of the sentence. If the sentence is correct as it stands, don't change
it. Mark "Right" in the box at the end of the sentence.

		Right	Wrong
Example:			
1. The lieutenant divided the ammo between the three men. among (Use "between" for two things. The sentence talks about _three_ men. You must use "among.")		☐	■

	Right	Wrong
1. I borrowed a few dollars off of my buddy. _____	☐	☐
2. The patrol must of been lost. _____	☐	☐
3. He reached into his duffle bag to find an old shirt. _____	☐	☐
4. Share the rations among the two of you. _____	☐	☐
5. Who, beside Smith, is going on TDY next week? _ _____	☐	☐

	Right	Wrong

6. The sarge asked where the extra troops
   were at. _____   ☐   ☐

7. He jumped off the ridge. _____   ☐   ☐

8. The commander takes smart talk off nobody. _____   ☐   ☐

9. He sat into the office doing his work. _____   ☐   ☐

10. The jeep beside mine is covered with
    camouflage paint. _____   ☐   ☐

Name _____

A FRAGMENT is a piece of something. It can be a piece of a sentence.
It may be a phrase or group of words that don't make sense. You know that a
sentence must have a subject and a verb. A FRAGMENT IS MISSING EITHER A
SUBJECT OR A VERB. IT MAY BEGIN WITH A CAPITAL AND END WITH A PERIOD, BUT
IT DOES NOT TELL A COMPLETE THOUGHT.

Examples: 1.   Hoping to hear from you soon.
                 (This is a fragment. There is no subject and
                 only part of a verb.)

           2.   I am hoping to hear from you soon.
                 (Now it is a complete sentence.)

           3.   The young girl in the accident.
                 (There is no verb. This is a fragment.)

           4.   The young girl was injured in the accident.
                 (Now it is a complete sentence.)

Instructions: Look for the subject and the verb in each of these sentences.
Decide if it is a sentence or a fragment. Mark "C" if it is a complete sentence.
Mark "F" if it is a fragment.

		C	F
Examples: 5.	On the table at the back of the room. (This fragment is three prepositional phrases. There is no subject or verb.)	0	●
6.	Women and small children at the side of the road. (No verb.)	0	●
7.	In God we trust. ("We" is the subject. "Trust" is the verb.)	●	0

		C	F
1.	About 300 meters per second.	0	0
2.	Make a target seem closer than it is.	0	0
3.	Meaning "WILL COMPLY."	0	0
4.	You say 16,000 -- "WUN SIX TOUSAND."	0	0
5.	The number of football fields between you and the target.	0	0
6.	That water is shown in blue on your map.	0	0
7.	Looking for streams to find valleys.	0	0
8.	Streams don't run along the tops of hills.	0	0

Name _____

	C	F
9. Tickmarks pointing toward lower ground.	0	0
10. The meaning of "ROGER" is included in "WILCO:"	0	0
11. Estimating range is a valuable skill.	0	0
12. Squeezing, not jerking, the trigger.	0	0
13. How to operate a field telephone.	0	0
14. Reading RIGHT and UP on a map.	0	0
15. WIDTH over RANGE times MILS.	0	0

Name _____

A sentence stops with a period. If you run one sentence right on to the next sentence with a comma but no period, you have a RUN-ON SENTENCE.

A RUN-ON SENTENCE CONSISTS OF TWO OR MORE SENTENCES RUN TOGETHER <u>AND PUNCTUATED AS IF IT WERE ONE SENTENCE</u>.

Examples: 1. Drive very slowly, the road is icy.   (Run-on)

2. Drive very slowly. The road is icy. (Correct)

Instructions: Look at each of the following sentences. If it is a run-on sentence, mark the "R". If it is a complete sentence and it is punctuated correctly, mark the "C".

		C	R
Examples:	3. He used smoke for concealment, it covered his advance. (Run-on. Two complete sentences.)	||	||
	4. To cross over barbed wire, you put something over it. (Correct. The first part is a phrase. It is punctuated correctly.)	||	||

		C	R
1.	To go under the wire, slide headfirst under on your back.	||	||
2.	Push yourself forward, carry your weapon lengthwise.	||	||
3.	The wire slides on the weapon, it keeps the wire from catching on clothing and equipment.	||	||
4.	You inch your way along, holding the wires with one hand.	||	||
5.	Cut only the lower strands, leave the top wire in place.	||	||
6.	Roll quickly over the top of a wall, avoid going over upright.	||	||
7.	When crossing an obstacle such as a wall, use the buddy system.	||	||
8.	One man covers, one crosses.	||	||
9.	You had first checked for early warning devices attached to the wire, then you pulled the wire.	||	||
10.	You are able to move over, through, or anound any obstacles (except minefields) using these methods.	||	||

The customary use of words or groups of words is called USAGE. Good usage is the use of acceptable language according to the rules of standard English. Good usage requires the following:

    1. Right use of a word
    2. Correct grammar
    3. Clear language form
    4. Effective form of expression
    5. Acceptable style

Study the following list of words and expressions which you commonly misuse.

1. A - AN - AND

Use A in front of words beginning with a consonant sound. (He is A very good marksman.)
Use AN in front of words beginning with a vowel sound. (He is AN active member of the rifle squad.)
Use AND to join words together. (He AND I are members.)

2. ACCEPT - EXCEPT

ACCEPT means TO RECEIVE. (I will ACCEPT your offer.)

EXCEPT means TO LEAVE OUT. (Everyone EXCEPT the principal stayed after school.)

3. AFFECT - EFFECT

AFFECT means to influence or change. (Your attitude can AFFECT your job.)

EFFECT means to make happen. (The EFFECT of stepping on the brakes is to stop the car.)

4. "AIN'T"

AIN'T is not an acceptable contraction for any word in the English language!

5. ALL READY - ALREADY

ALL READY means that all people or things are prepared. (The weapons are ALL READY to be fired.)

ALREADY means previously or before. (The M16 had ALREADY been fired.)

6. ALL RIGHT - "ALRIGHT"

     ALL RIGHT means entirely correct. (The CO expressed doubt that it
       would be ALL RIGHT to postpone the maneuver.)

     "ALRIGHT" is not a word. Do NOT use it!

7. ALL TOGETHER - ALTOGETHER

     ALL TOGETHER means in a group. (The men of the COHORT unit will
       complete training ALL TOGETHER.)

     ALTOGETHER means completely or thoroughly. (He was not ALTOGETHER
       sure of his information.)

8. ALTER - ALTAR

     ALTER means TO CHANGE. (You may not ALTER the address on the envelope.)

     ALTAR means A STRUCTURE USED IN WORSHIP. (He walked the ten paces to
       get to the ALTAR in the church.)

9. ANYPLACE - EVERYPLACE - NOPLACE - SOMEPLACE

     Use the word WHERE instead of PLACE. (They couldn't find the source
       of the lead ANYWHERE on the container.)

10. AS IF - LIKE

     Use AS IF to introduce dependent clauses. (He acted AS IF he knew that
       particular region well.) He acted LIKE he knew... WRONG!

     Use LIKE only as a prepos.tion. (A burden LIKE that is difficult for
       anyone to bear.)

11. AS - SO

     Use AS when you compare things in a positive (good) way. (My SQT
       score is AS good as yours!)

     Use SO when you compare things in a negative (bad) way. (But my SQT
       score is not SO good as Manderson's!)

12. "ANYWHERES"

     "ANYWHERES" is not a word! Drop the "s."

13. AWFULLY

    Do <u>NOT</u> use <u>AWFULLY</u> in place of "very" and "exceedingly." (That guard doesn't seem <u>VERY</u> alert.) Do <u>NOT</u> say "<u>AWFULLY</u> alert."

14. BRIDAL - BRIDLE

    BRIDAL means OF A WEDDING. (The <u>BRIDAL</u> party looked marvelous).

    BRIDLE means HEADGEAR WITH WHICH A HORSE IS CONTROLLED. (The gentle horse had a new harness and <u>BRIDLE</u>.)

15. "BUSTED"

    "BUSTED" is not a word. Use BURST or BROKE! (I <u>BROKE</u> my valuable compass.) Do <u>NOT</u> say "I <u>BUSTED</u>..."

16. CAPITOL - CAPITAL

    CAPITOL is a BUILDING WHERE GOVERNMENT IS HOUSED. (Our state <u>CAPITOL</u> has a gold dome.)

    CAPITAL is MONEY, or the CITY where the seat of government is located, or an UPPER CASE LETTER. (He has already spent the <u>CAPITAL</u> he had set aside.) (The <u>CAPITAL</u> of California is Sacramento.) (Begin each sentence with a <u>CAPITAL</u> letter.)

17. CELERY - SALARY

    CELERY is a green vegetable. (His least favorite food is <u>CELERY</u>.)

    SALARY is a fixed income. (Her <u>SALARY</u> was hardly enough to pay the rent.)

18. "COMPLECTED"

    "COMPLECTED" is not a word! Use COMPLEXIONED. (The dark <u>COMPLEXIONED</u> person doesn't burn in the sun.)

19. "COULD OF" - COULD HAVE

    "COULD OF" is NOT acceptable. (I <u>COULD HAVE</u> completed the task quickly.)

20. CORPS - CORPSE

    CORPS (pronounced CORE) is a GROUP. (The <u>CORPS</u> of Engineers is having its annual meeting.)

    CORPSE means DEAD BODY. (He identified the <u>CORPSE</u> at the morgue.)

21. "DIFFERENT FROM" - DIFFERENT THAN

>   Do NOT use "DIFFERENT FROM." It is not acceptable. (My MOS is
>   DIFFERENT FROM yours. -WRONG. Use DIFFERENT THAN.)

22. "DONE GOOD"

>   NEVER use this! Say "Did well." (I DID WELL on my SQT.)

23. FAMOUS - NOTORIOUS

>   FAMOUS means WELL-KNOWN, in a GOOD sense. (The FAMOUS scientist
>   received a grant to study microbes.)

>   NOTORIOUS means WELL-KNOWN, in a BAD sense. (Jesse James was a
>   NOTORIOUS robber.)

24. FEWER - LESS

>   Use FEWER with nouns that can be counted: 1, 2, 3. (Our squad has
>   FEWER soldiers on sick call today.)

>   Use LESS to show a decrease in amount in nouns that cannot be counted.
>   (There seems to be LESS absenteeism in this unit.)

25. "IN BACK OF" - BEHIND

>   NEVER use "IN BACK OF." (The next battalion run will begin BEHIND
>   the barracks.)

26. LATER - LATTER

>   LATER means AFTERWARDS. (It is LATER than you think!)

>   LATTER means the SECOND OF TWO THINGS. (Of the two choices, the LATTER
>   is better.)

27. LEAVE - LET

>   LEAVE means TO GO AWAY. (Jones LEAVES the office at almost the same
>   time each day.)

>   LET means TO ALLOW. (Please LET me take my pillow to the field!)

28. LOSE - LOOSE

>   LOSE means TO MISPLACE. (He told the visitor not to LOSE the extra key.)

>   LOOSE means FREE or NOT ATTACHED TO SOMETHING. (Smith's LOOSE change
>   fell from his pocket.)

29. NO - NOT

> NEVER use the word <u>NOT</u> in the same sentence with the word <u>NO</u>! NEVER
> use a contraction that ends in <u>N'T</u> in the same sentence with
> the word <u>NO</u>!
>
> Example: 1. He hasn't <u>no</u> money. -- WRONG!
>   2. He has <u>no</u> money. -- RIGHT!
>   3. He has<u>n't</u> any money. -- RIGHT!

30. "NOWHERES"

> NEVER use this! Drop the "s"! (He was <u>NOWHERE</u> to be found!)

31. NUMBER - AMOUNT

> NUMBER refers to COUNTABLE THINGS. (We had a <u>NUMBER</u> of difficulties
> to overcome.)
>
> AMOUNT refers to QUANTITY IN BULK. (No <u>AMOUNT</u> of talking could make
> him change the subject.)

32. PRECEDE - PROCEED

> PRECEDE means TO GO BEFORE. (Our squad will <u>PRECEDE</u> yours in the parade.)
>
> PROCEED means TO MOVE ALONG. (We could not <u>PROCEED</u> on our journey
> because an obstacle blocked the avenue.)

33. "OFF OF"

> NEVER use OFF OF! Use <u>FROM</u> or <u>OFF</u>. (The chain fell <u>FROM</u> the car as
> we were driving back.)

34. REAL - REALLY

> REAL means TRUE or GENUINE. (That he almost won the baking contest
> was a <u>REAL</u> surprise to everyone.)
>
> REALLY means VERY MUCH. (The sun was <u>REALLY</u> shining on that particular day.)

35. "SELDOM EVER"

> Never use <u>SELDOM</u> and <u>EVER</u> together. Use RARELY! (The young recruit
> <u>RARELY</u> had money left before payday.)

36. "SOMEWHERES"

> DROP the final "S"! (We hope to find the encampment <u>SOMEWHERE</u> over the ridge.)

37. THEIR - THEY'RE - THERE

Use THEIR to SHOW POSSESSION. It does NOT have an apostrophe!
(They were tasting THEIR salmon that they had caught last autumn.)

Use THEY'RE to mean THEY ARE. It has an apostrophe. (THEY'RE discouraged
about the expected reduction in salary.)

Use THERE to mean IN THAT PLACE. It does NOT have an apostrophe!
(We waited THERE a total of nineteen hours.)

38. "TRY AND" - TRY TO

Do NOT use "TRY AND." Use TRY TO! (Please TRY TO devise a way to find
the source of the information.)

39. USE - USED

USE, a noun or a verb, means the act of employing something. (Put
your military training to good USE. USE your gas mask.)

USED, a verb, is the past tense of USE. (They USED to take turns at
guarding the compound.)

40. WIN - BEAT

WIN refers to a game or contest. (The squad team WON the relay.)

BEAT refers to a person or a team. (Smith BEAT Jones in the playoff.)
(SMITH WON Jones ..... WRONG!)

41. "WOULD OF" - WOULD HAVE

NEVER use "WOULD OF." Use WOULD HAVE. (I WOULD HAVE been content
to remain in my former job.)

42. OMIT ALL UNNECESSARY WORDS!

(a) Do you think THIS (NOT THIS HERE!) is the correct answer?

(b) We expect to see THAT (NOT THAT THERE!) movie again tonight.

(c) Now I know what KIND OF (NOT KIND OF A) soldier you are!

(d) Don't you think you OUGHT (NOT HAD OUGHT!) to report for duty?

(e) None came BUT (NOT BUT ONLY!) Jones.

Instructions: Decide which word is correct in each sentence. Use the rules of
good usage. Write the correct word on the line at the end of the sentence.

Example: 1. Behind the barracks stood (their, there) basketball

court. _____their_____

1. Will you (precede, proceed) with your questions, please? _____

2. Would you rather have time off or a higher (celery, salary)? _____

3. The (capital, capitol) of the state is not always the

largest city. _____

4. We (ought, had ought) to arrive at the checkpoint before dusk. _____

5. Did you find my wallet (somewhere, somewheres)? _____

6. You can (loose, lose) your freedoms if you don't guard them. _____

7. The horse trotted down the (bridal, bridle) path. _____

8. Jones tried (awful, awfully, very) hard to be courageous. _____

9. Is your pay voucher this month (different from, different than)

last month's? _____

10. There are (less, fewer) vehicles in operable condition today. _____

11. Those field manuals are (theirs', their's, theirs). _____

12. We have (a, an, and) hour before the next class. _____

13. Everyone (accept, except) the greedy soldier was pleased

with his bonus. _____

14. How will that field exercise (affect, effect) morale? _____

15. They looked (as, as if, like) they were exhausted

from the training. _____

16. The sarge said it was (all right, alright) to leave early. _____

17. He had (all ready, already) adjusted the sights on his

M16A1 rifle. _____

18. Life (ain't, isn't) what I thought it'd be! _____

19. The football-field method of estimating range is not (so, as)

accurate as the binocular-reticle/mil-relation method. _____

20. He is the most lightly (complected, complexioned)
    Indian I had ever seen. _____

21. I wish you (could of, could have) arrived a little earlier. _____

22. My commander said I (done good, did well) on the task. _____

23. The deuce-and-a-half failed to see the car (behind, in back of)
    it because the ground guide had remained inside the
    truck. _____

24. (Let, Leave) me get my work finished! _____

25. That soldier hasn't (no, any) respect for higher authority. _____

26. It is (real, really) important to be able to estimate range. _____

27. He fell (from, off of) the turret of the tank. _____

28. (Try to, Try and) complete all your duties on time. _____

29. Jones (use, used) to be the best platoon sergeant in
    the battalion. _____

30. Smith (would of, would have) constructed an individual fighting
    position but there was little time to do so. _____

31. Did he think we (had ought, ought) to construct an
    overhead cover? _____

32. Each man had to (alter, altar) his planned method of concealment
    to fit the terrain. _____

33. The (salary, celery) in the salad was limp and soggy._____

34. The inventory included the (number, amount) of unused
    rounds of ammunition. _____

35. Company A (won, beat, winned) C Company in the road march. _____

36. In the last week, I have seen him (nowheres, nowhere). _____

37. (Anyplace, anywhere, anywheres) you are, you must be able
    to camouflage your defensive position. _____

38. They (busted, broke) out of the clearing into open fire. _____

39. He was a member of the (corps, corpse) through and through. _____

40. This commander is (famous, notorious) for his harsh discipline. _____

Grammar
Activity Sheet 1A
Subjects: Number

		Singular	Plural				Singular	Plural
1.	PVT Jones	■	□		13.	soldiers	□	■
2.	SGT Smith	■	□		14.	They	□	■
3.	private	■	□		15.	Everyone	■	□
4.	soldiers	□	■		16.	I	■	□
5.	They	□	■		17.	one	■	□
6.	soldier	■	□		18.	Jones	■	□
7.	He	■	□		19.	soldiers	□	■
8.	cloth	■	□		20.	He	■	□
9.	men	□	■		21.	Minutes	□	■
10.	PVT Jones	■	□		22.	medics	□	■
11.	We	□	■		23.	PVT Jones	■	□
12.	He	■	□					

1. <u>determine</u>

2. <u>place</u>

3. <u>casts</u>

4. <u>mark</u>

5. <u>marks</u>

6. <u>moves</u>

7. <u>moves</u>

8. <u>mark</u>

9. <u>draw</u>

10. <u>shows</u>

11. <u>make</u>

12. <u>have</u>

1. is

2. was

3. remained

4. felt

5. look

6. tasted   (delicious)

7. sounded   (loud)

8. were   (angry)

9. am   (person)

10. became   (winner)

11. remain   (friends)

12. grow   (longer)

13. is   (friend)

14. appeared   (smoky)

15. seem   (tired)

CHECK SHEET
Grammar
Activity Sheet 4A
Verbs: Number

	Singular	Plural	
1.	■	☐	includes
2.	☐	■	put
3.	☐	■	blouse
4.	■	☐	pulls
5.	■	☐	threads
6.	☐	■	are
7.	■	☐	ties
8.	☐	■	go
9.	☐	■	pull
10.	☐	■	Use
11.	■	☐	goes
12.	☐	■	come
13.	■	☐	ties
14.	■	☐	wraps
15.	☐	■	zip
16.	☐	■	blouse
17.	☐	■	have

1. salute (of the soldier)

2. letters (of "SALUTE")

3. letters (in the word)

4. "S" (in the word)

5. number (of personnel)

6. Activity (of the enemy)

7. coordinates (from a known location)

8. UNIT (of the foe)

9. description (of patches or clothing)

10. markings (on vehicles)

11. TIME (of the activity)

12. EQUIPMENT (associated with the activity)

13. soldier (who is alert)

14. item (of interest expressed by the letters of the key word "SALUTE")

		Singular	Plural
1.	soldiers vehicles make	☐	■
2.	troops truck leaves	■	☐
3.	You buddy have	☐	■
4.	Soviet Union United States is	■	☐
5.	group is	■	☐
6.	Politics was	■	☐
7.	men company receives	■	☐
8.	Mary you have	☐	■
9.	Army Air Force offer	☐	■
10.	friends I attend	☐	■

CHECK SHEET
Grammar
Activity Sheet   7A
Helping Verbs

1.   <u>must</u>

2.   <u>must be</u>

3.   <u>is</u>

4.   <u>is</u>

5.   <u>will</u>

6.   <u>will be</u>

7.   <u>Was</u>

8.   <u>should</u>

9.   <u>has been</u>

10. <u>had</u>

		Action	Linking
1.	must recognize	▮	‖
2.	include	▮	‖
3.	includes	▮	‖
4.	has	▮	‖
5.	is	‖	▮
6.	must drink	▮	‖
7.	should swallow	▮	‖
8.	do give	▮	‖
9.	is	‖	▮
10.	drinks	▮	‖
11.	will come	▮	‖
12.	loosen	▮	‖
13.	raises	▮	‖
14.	is	‖	▮
15.	can be	‖	▮
16.	take	▮	‖

		Person 1	Person 2	Person 3	Singular	Plural
1.	He	||	||	▮	▮	||
2.	word "terrain"	||	||	▮	▮	||
3.	You	||	▮	||	||	▮
4.	features	||	||	▮	||	▮
5.	We	▮	||	||	||	▮
6.	BLACK	||	||	▮	▮	||
7.	features	||	||	▮	||	▮
8.	GREEN	||	||	▮	▮	||
9.	RED	||	||	▮	▮	||
10.	lines	||	||	▮	||	▮
11.	"Contour"	||	||	▮	▮	||
12.	lines	||	||	▮	||	▮
13.	terrain	||	||	▮	▮	||
14.	You	||	▮	||	||	▮
15.	Pvt Jones	||	||	▮	▮	||
16.	I	▮	||	||	▮	||
17.	Maps	||	||	▮	||	▮
18.	base	||	||	▮	▮	||
19.	ground	||	||	▮	▮	||
20.	ridge	||	||	▮	▮	||

<u>CHECK SHEET</u>
Grammar
Activity Sheet 10A
Verbs: Tense

1.   clear

2.   removed

3.   disassembled

4.   lubricate

5.   cleans

6.   wipes

7.   needs

8.   remember

9.   applied

10. used

CHECK SHEET
Grammar
Activity Sheet 11A
Regular Past Participle

	Yes	No
1.	■	☐
2.	☐	■
3.	■	☐
4.	■	☐
5.	☐	■
6.	☐	■
7.	■	☐
8.	☐	■
9.	■	☐
10.	☐	■

1. broken

2. fallen

3. gone

4. begun

5. seen

6. thrown

7. known

8. taken

9. rung

10. done

11. come

12. eaten

13. flown

15. swum

15. written

16. blew

17. swam

18. became

19. fought

20. chose

21. fell

22. broke

23. drank

24. ran

25. threw

1. <u>fell</u>   has fallen

2. <u>passed</u>   has passed

3. <u>rode</u>   has ridden

4. <u>completed</u>   have completed

5. <u>sent</u>   have sent

6. <u>hid</u>   has hidden

7. <u>began</u>   has begun

8. <u>chose</u>   has chosen

9. <u>did</u>   have done

10. <u>drove</u>   have driven

11. <u>was</u>   have been

12. <u>came</u>   has come

CHECK SHEET
Grammar
Activity Sheet 14A
Confusing Verbs

1. <u>teach</u>

2. <u>laid</u>

3. <u>set</u>

4. <u>rise</u>

5. <u>leave</u>

6. <u>lying</u>

7. <u>learned</u>

8. <u>let</u>

9. <u>sat</u>

10. <u>raised</u>

11. <u>brought</u>

12. <u>takes</u>

CHECK SHEET
Grammar
Activity Sheet 15A
Subject and Verb Agreement

					Yes	No
1.	Pvt Jones	digs			■	☐
2.	He	make			☐	■
3.	They	camouflages			☐	■
4.	You	puts	clear	checks	☐	■
5.	You	spot			■	☐
6.	They	doesn't			☐	■
7.	Was	siren			■	☐
8.	You	uses			☐	■
9.	Doesn't	mother	write		■	☐
10.	Don't	you			■	☐

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CHECK SHEET
Grammar
Activity Sheet 16A
Agreement: "There" and "Here"

				Singular	Plural
1.	T̶h̶e̶r̶e̶	goes	car		☑	☐
2.	H̶e̶r̶e̶	are	Pvt Smith SP4 Davis	☐	☑
3.	T̶h̶e̶r̶e̶	was	marker	☑	☐
4.	T̶h̶e̶r̶e̶	were	tanks	☐	☑
5.	H̶e̶r̶e̶	are	reports	☐	☑
6.	H̶e̶r̶e̶	comes	artillery	☑	☐
7.	T̶h̶e̶r̶e̶	were	soldiers	☐	☑
8.	T̶h̶e̶r̶e̶	doesn't	sergeant	☑	☐
9.	T̶h̶e̶r̶e̶	are	sides	☐	☑
10.	H̶e̶r̶e̶	is	answer	☑	☐

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Grammar
Activity Sheet 17A
Pronouns: Person, Number, Antecedent

		1st	2nd	3rd	Singu-lar	Plural
1.	Children	0	0	●	0	●
2.	Smith	0	0	●	●	0
3.	manuals	·0	0	●	0	●
4.	sergeant	0	0	●	●	0
5.	We	●	0	0	0	●
6.	Smith	0	0	●	●	0
7.	I	●	0	0	●	0
8.	soldiers	0	0	●	0	●
9.	Soldiers	0	●	0	0	●
10.	I	●	0	0	●	0

1. <u>Everybody</u>   <u>has</u>

2. <u>Nobody</u>   <u>suffers</u>

3. <u>Few</u>   <u>know</u>

4. <u>Both</u>   <u>understand</u>

5. <u>One</u>   <u>is</u>

6. <u>Many</u>   <u>were</u>

7. <u>Anyone</u>   <u>has</u>

8. <u>All</u>   <u>were</u>

9. <u>all</u>   <u>disappears</u>

10. <u>Others</u>   <u>are</u>

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1. (One) his

2. (Several) their

3. (Few) their

4. (everyone) himself

5. (Nobody) he

6. (Many a troop) his

7. (Everybody) her

8. (Someone) his

9. (Each) he

10. (Anyone) his

1. (squad)   its

2. (nations)   their

3. (tribe)   its

4. (college)   its

5. (classes)   their

6. (family)   its

7. (team)   its

8. (herd)   its

9. (school)   its

10. (government)   its

1. their

2. its

3. his

4. his

5. its

6. his

7. his

8. he

9. his

10. his

11. its

12. their

13. her

14. its

15. his

16. his

17. their

18. his

19. its

20. his

CHECK SHEET
Grammar
Activity Sheet 22A
Pronouns Used as Subjects

		Yes	No
1.	We	●	0
2.	I	0	●
3.	they	0	●
4.	I	●	-0
5.	I	0	●
6.	She	0	●
7.	he	0	●
8.	you	●	0
9.	they	●	0
10.	we	0	●

<u>CHECK SHEET</u>
Grammar
Activity Sheet 23A
Pronouns Used as Objects

		Yes	No
1.	<u>them</u>	●	0
2.	<u>Me</u>	0	●
3.	<u>her</u>	●	0
4.	<u>Him</u>	0	●
5.	<u>us</u>	●	0
6.	<u>him</u>	0	●
7.	<u>them</u>	0	●
8.	<u>her</u>	●	0
9.	<u>us</u>	0	●
10.	<u>me</u>	0	●

CHECK SHEET
Activity Sheet 24A
Practice on Subject and Object Pronouns

		Subject Pronouns	Object Pronouns
1.	He I	●	0
2.	me	0	●
3.	he	●	0
4.	They	●	0
5.	him	0	●
6.	me	0	●
7.	she	●	0
8.	us	0	●
9.	I	●	0
10.	They we	●	0
11.	Whom	0	●
12.	Who	●	0
13.	me	0	●
14.	them	0	●
15.	She	●	0
16.	him	0	●
17.	they	●	0
18.	She	●	0
19.	me	0	●
20.	us	0	●

1. (to)   <u>me</u>

2. (except)   <u>her</u>

3. (between)   <u>him</u>

4. (to)   <u>me</u>

5. (behind)   <u>them</u>

6. (among)   <u>them</u>

7. (from) (by)   <u>her</u>

8. (with) (from) <u>me</u>

9. (around)   <u>us</u>

10. (Between)   <u>me</u>

1. theirs

2. themselves

3. yours

4. himself

5. ourselves

6. its

7. ours

8. Whose

9. Hers

10. yourselves

			Yes	No
1.	that		■	☐
2.	who	which or that	☐	■
3.	that		■	☐
4.	who	that or which	☐	■
5.	which	who or that	☐	■
6.	that		■	☐
7.	which		■	☐
8.	which		■	☐
9.	which	who or that	☐	■
10.	who	which or that	☐	■

1.   <u>are</u>   (students)

2.   <u>has</u>   (sergeant)

3.   <u>are</u>   (tests)

4.   (music)   <u>helps</u>

5.   (anyone)   <u>promises</u>

6.   (animals)   <u>appear</u>

7.   (soldiers)   <u>wear</u>

8.   (soldier)   <u>qualifies</u>

9.   (Azimuths)   <u>are</u>

10. (area)   <u>looks</u>

1. <u>larger</u>

2. <u>most</u>

3. <u>slimmest</u>

4. <u>more normal</u>

5. <u>most</u>

6. <u>more</u>

7. <u>clumsier</u>

8. <u>denser</u>

9. <u>most advantageous</u>

10. <u>most sensible</u>

11. <u>less</u>

12. <u>worst</u>

13. <u>best</u>

14. <u>better</u>

15. <u>worse</u>

1. That

2. those

3. this

4. These

5. these

6. That

7. Those

8. Those

9. that

10. That

Grammar
Activity Sheet 31A
Using Adverbs for Comparison

1. <u>better</u>

2. <u>slowly</u>

3. <u>more carefully</u>

4. <u>most</u>

5. <u>better</u>

6. <u>best</u>

7. <u>prettier</u>

8. <u>worse</u>

9. <u>more</u>

10. <u>clumsily</u>

1. <u>well</u>

2. <u>bad</u>

3. <u>carefully</u>

4. <u>beautiful</u>

5. <u>surely</u>

6. <u>almost</u>

7. <u>well</u>

8. <u>badly</u>

9. <u>cheap</u>

10. <u>well</u>

11. <u>good</u>

12. <u>smooth</u>

13. <u>strongly</u>

14. <u>carelessly</u>

15. <u>really</u>

			Right	Wrong
1.	off of	from	☐	■
2.	of	have	☐	■
3.			■	☐
4.	among	between	☐	■
5.	beside	besides	☐	■
6.	at		☐	■
7.			■	☐
8.	off	from	☐	■
9.	into	in	☐	■
10.			■	☐

Grammar
Activity Sheet 34A
Blunders: Fragments

	C	F
1.	0	●
2.	0	●
3.	0	●
4.	●	0
5.	0	●
6.	●	0
7.	0	●
8.	●	0
9.	0	●
10.	●	0
11.	●	0
12.	0	●
13.	0	●
14.	0	●
15.	0	●

CHECK SHEET
Grammar
Activity Sheet 35A
Blunders: Run-ons

	R	C
1.	||	▌
2.	▌	||
3.	▌	||
4.	||	▌
5.	▌	||
6.	▌	||
7.	||	▌
8.	▌	||
9.	▌	||
10.	||	▌

1.	proceed	21.	could have
2.	salary	22.	did well
3.	capital	23.	behind
4.	ought	24.	Let
5.	somewhere	25.	any
6.	lose	26.	really
7.	bridle	27.	from
8.	very	28.	Try to
9.	different than	29.	used
10.	fewer	30.	would have
11.	theirs	31.	ought
12.	an	32.	alter
13.	except	33.	celery
14.	affect	34.	number
15.	as if	35.	beat
16.	all right	36.	nowhere
17.	already	37.	anywhere
18.	isn't	38.	broke
19.	so	39.	corps
20.	complexioned	40.	notorious

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MODULE PREVIEW/REVIEW
MATH CONCEPTS

Instructions: Choose the correct answer for each problem. Then find the answer spaces on the answer sheet. Fill in the space under the letter of the correct answer.

1. The symbol ÷ is for: (a) addition   (c) multiplication
    (b) subtraction   (d) division

2. The symbol for percent is: (a) %   (c) ✗

    (b) /   (d) +

3. The symbol = is for: (a) multiplication   (c) percent
    (b) equals   (d) subtraction

4. Which shape is the rectangle: (a)   (c)

    (b)   (d)

5. Which shape has three sides?   (a) square   (c) triangle
    (b) pentagon   (d) parallelogram

6. What is the name of this shape?

    (a) rectangle   (c) trapezoid
    (b) parallelogram   (d) square

7. 5 X 3 = 3 X ▢   (a) 3 (c) 15
    (b) 5 (d) 2

8. 8 ▢ 9 = 9 + 8   (a) +   (c) X

    (b) -   (d) ÷

9. Which two kinds of math problems are <u>commutative</u>?

    (a) addition and subtraction   (c) addition and multiplication
    (b) subtraction and division   (d) multiplication and division

Name _____

10. Which is the longest line?

(a) AB   (c) CD
(b) BC   (d) DE

11. Which is the shortest line?
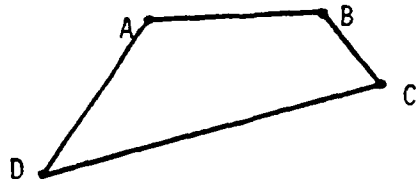
(a) AB   (c) CD
(b) BC   (d) DA

12. What is the total distance?
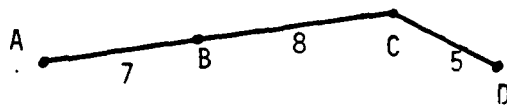
(a) 15   (c) 18
(b) 10   (d) 20

13. C =

(a) 5   (c) 50
(b) 10   (d) 100

14. XVI =

(a) 16   (c) 21
(b) 14   (d) 106

15. 412 =

(a) CDXII   (c) DCIXI
(b) CDIIX   (d) DIXII

Answer Sheet
Module Preview/Review
Math Concepts

Name _____

1.
	a	b	c	d
	☐	☐	☐	☐

9.
	a	b	c	d
	☐	☐	☐	☐

2.
	a	b	c	d
	☐	☐	☐	☐

10.
	a	b	c	d
	☐	☐	☐	☐

3.
	a	b	c	d
	☐	☐	☐	☐

11.
	a	b	c	d
	☐	☐	☐	☐

4.
	a	b	c	d
	☐	☐	☐	☐

12.
	a	b	c	d
	☐	☐	☐	☐

5.
	a	b	c	d
	☐	☐	☐	☐

13.
	a	b	c	d
	☐	☐	☐	☐

6.
	a	b	c	d
	☐	☐	☐	☐

14.
	a	b	c	d
	☐	☐	☐	☐

7.
	a	b	c	d
	☐	☐	☐	☐

15.
	a	b	c	d
	☐	☐	☐	☐

8.
	a	b	c	d
	☐	☐	☐	☐

Name _____

	a	b	c	d	IF WRONG, ASSIGN:
1.	☐	☐	☐	■	1
2.	■	☐	☐	☐	1
3.	☐	■	☐	☐	1
4.	☐	■	☐	☐	2
5.	☐	☐	■	☐	2
6.	☐	☐	■	☐	2
7.	☐	■	☐	☐	3
8.	■	☐	☐	☐	3

	a	b	c	d	IF WRONG, ASSIGN:
9.	☐	☐	■	☐	3
10.	☐	☐	■	☐	4
11.	☐	■	☐	☐	4
12.	☐	☐	☐	■	4
13.	☐	☐	☐	■	5
14.	■	☐	☐	☐	5
15.	■	☐	☐	☐	5

MODULE RECORD SHEET

MATH CONCEPTS

OBJECTIVE: Recognize and use mathematical symbols, geometric shapes, commutation, and Roman numerals. Figure out lengths and perimeters of lines and shapes.

SAMPLE TEST ITEMS:

1. Which shape is the triangle?

(a) □   (c) ○

(b) ⬡   (d) △
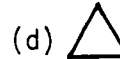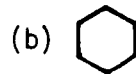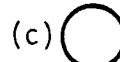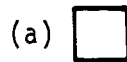
	a	b	c	d
	□	□	□	■

2. XIV =   (a) 104   (c) 15
            (b) 14   (d) 16

	a	b	c	d
	□	■	□	□

INTRODUCTION TO MATH CONCEPTS:

There are some special ideas or concepts that help us to do math problems. Some of these ideas have to do with <u>symbols</u> or signs that tell you what to do in a math problem. Others are geometric shapes, different kinds of numbers, or ways of thinking about length and shape.

These activity sheets will teach you some math concepts that you need to know. Work through all the activity sheets that have been circled below. You can check your own work using the check sheets your teacher has shown you. If you have any questions, ask your teacher. When you are through with all the activity sheets and are sure you understand all the math concepts, ask to take the Math Concepts Review.

ACTIVITY SHEET

Mathematical Symbols	1A	1B
Geometric Shape Recognition	2A	2B
Commutation	3A	3B
Length and Perimeters	4A	4B
Roman Numerals	5A	5B

In this lesson you will learn the mathematical symbols for equals, addition, subtraction, multiplication, division, and percents.

This is a list of the symbols you will learn:

EQUALS	=
ADDITION	+
SUBTRACTION	−
MULTIPLICATION	x
DIVISION	÷ or $\sqrt{}$
PERCENT	%

Study the list for a few minutes until you think you know it, then turn the page.

Instructions: Pick the correct answer from the four answers shown for each question. Then fill in the square in front of the correct answer on your answer sheet.

1.   The symbol + is for

(a) addition
(b) subtraction
(c) division
(d) percent

2.   The symbol for addition is

(a) x
(b) +
(c) ÷
(d) -

3.   The symbol X is for

(a) equals
(b) addition
(c) multiplication
(d) division

4.   The symbol for multiplication is

(a) -
(b) ÷
(c) +
(d) x

5.   The symbol / ‾‾‾ is for

(a) equals
(b) multiplication
(c) division
(d) subtraction

6.   A symbol for division is

(a) -____
(b) /‾‾‾
(c) +
(d) x

7.   The symbol = is for

(a) multiplication
(b) equals
(c) percent
(d) subtraction

8.   The symbol for equals is

(a) %
(b) +
(c) =
(d) x

9.   The symbol ÷ is for

(a) multiplication
(b) subtraction
(c) addition
(d) division

10.   A symbol for division is

(a) +
(b) x
(c) ÷
(d) -

11.   The symbol - is for

(a) equals
(b) subtraction
(c) division
(d) addition

12.   The symbol for subtraction is

(a) +
(b) x
(c) ÷
(d) -

13.   The symbol % is for

(a) addition
(b) multiplication
(c) percent
(d) division

14.   The symbol for percent is

(a) %
(b) ÷
(c) x
(d) +

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Math Concepts
Activity Sheet 1A
Mathematical Symbols

Name _____

ANSWER SHEET

<table>
<tr><th></th><th>A</th><th>B</th><th>C</th><th>D</th><th></th><th></th><th>A</th><th>B</th><th>C</th><th>D</th></tr>
<tr><td>1.</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td></td><td>11.</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td></tr>
<tr><td>2.</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td></td><td>12.</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td></tr>
<tr><td>3.</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td></td><td>13.</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td></tr>
<tr><td>4.</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td></td><td>14.</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td></tr>
<tr><td>5.</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>6.</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>7.</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>8.</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>9.</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>10.</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>

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In this activity, you will learn to recognize these geometric shapes: trapezoid, parallelogram, rectangle, square, pentagon, triangle, and circle.

1.   A _trapezoid_ is a shape that has four straight sides and four corners. The sides can be any length. The corners can be bent at any angle.

Trapezoids look like this:
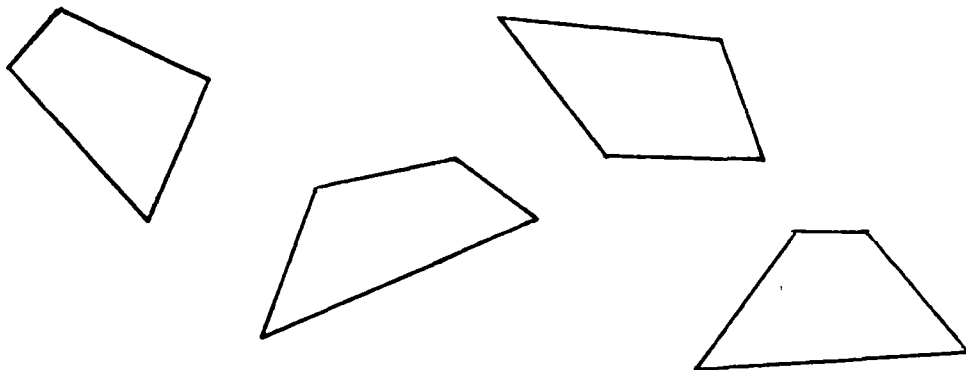
2.   The next shape is called a _parallelogram_. A parallelogram has parallel sides; that is, the sides are lined up with each other. Also, each pair of sides is the same length.

Some parallelograms:

SAME
LENGTH

SAME
LENGTH

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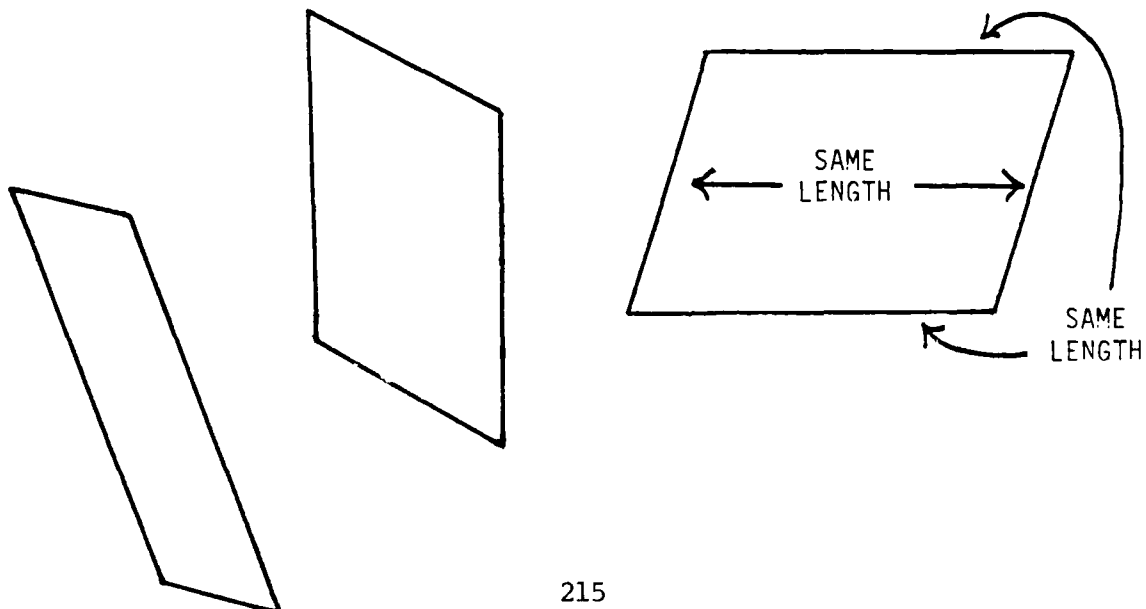
3.   The next shape is called a <u>rectangle</u>. A rectangle has one
        characteristic that the parallelogram doesn't have. All the
        corners of a rectangle are bent the same. They are <u>right angles</u>.
        But the two sets of sides are different lengths.

RECTANGLE

SAME
ANGLES
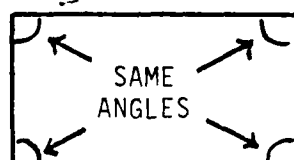
Some rectangles:
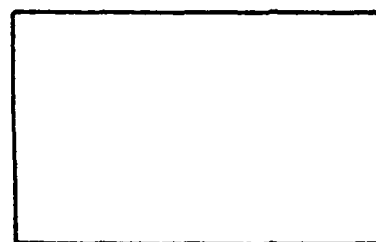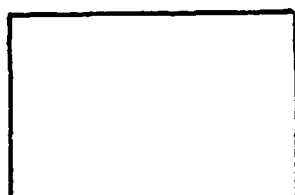
4.   The next shape is called a <u>square</u>. A square has <u>four equal sides</u>
        <u>and four equal corners</u>.

ALL
THE
SAME
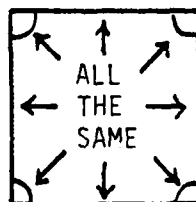
Some squares:
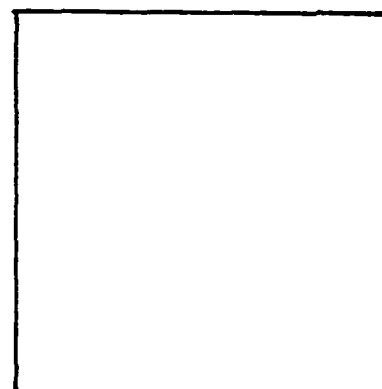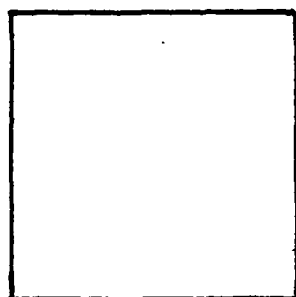
5.   So far, all the geometric shapes you have looked at had <u>four sides</u>
      and <u>four angles</u>. But there are other shapes that have <u>less</u> or <u>more</u>
      than four sides or angles. Here are some of these other shapes:

<div align="center">

TRIANGLE

(3 sides, 3 corners)

</div>
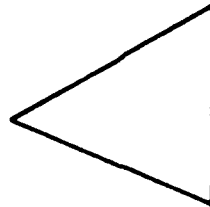
PENTAGON   HEXAGON
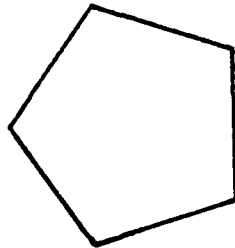
(5 sides, 5 corners)   (6 sides, 6 corners)
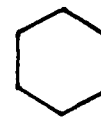
OCTAGON   DECAGON
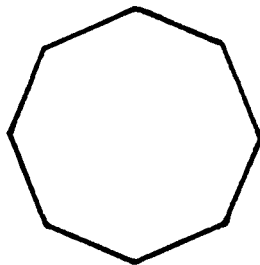
(8 sides, 8 corners)   (10 sides, 10 corners)
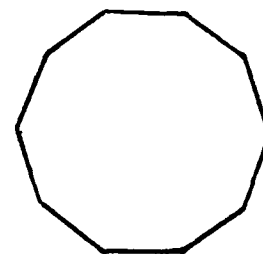
6.   The last geometric shape you need to know doesn't have any straight
        sides or any angles. This shape is a circle. A circle is round,
        like this:
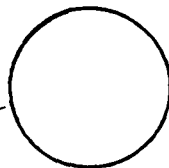
Here are some circles:
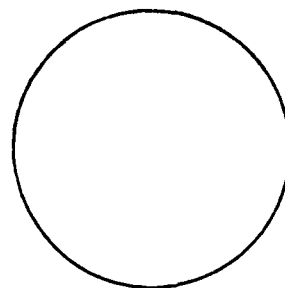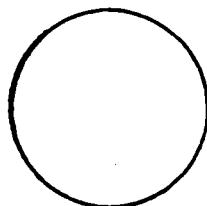
        Instructions: Select the correct answer A, B, C, D. Then turn to
your answer sheet and fill in the space with the letter of the answer you
have picked.

        Example: O. Which shape is the rectangle?   From Answer Sheet:

        a) ◯   c) ▱   O. [A]   [B]   [C]   ▨

        b) △   d) ▭
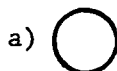
1. Which shape is the trapezoid?
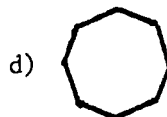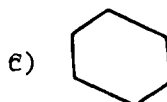
        a) ⏢   c) ⬡

        b)   d) ⬟

2. Which shape is the square?

a) △   c) ☐

b) ▱   ⌐   d) ◿
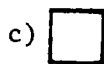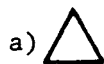
3. Which shape is the circle?

a) ☐   c) △

b) ◯   d) ▱
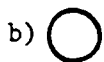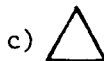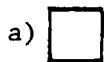
4. Which shape is the pentagon?

a) ☐   c) ◯

b) ▱   d) ⬠
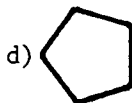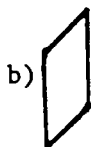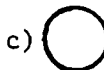
5. Which shape is the rectangle?

a) ▱   c) ▷

b) ▱   d) ◺
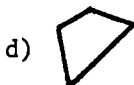
6. Which shape has four right angles?

        a) Trapezoid   c) Triangle

        b) Square   d) Pentagon

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7. Which shape is the triangle?

a)   c)

b)   d)
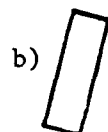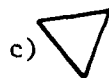
8. Which shape has a triangle and a rectangle in it?

a)   c)

b)   d)

9. Which shape is the hexagon?

a)   c)

b)   d)
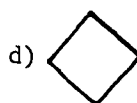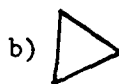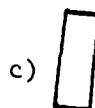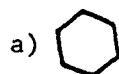
10. Which shape has three sides?

a) Square   c) Triangle

b) Pentagon   d) Parallelogram

11. What is the name of this shape?

a) Triangle   c) Trapezoid

b) Parallelogram   d) Square

12. What is the name of this shape?

a) Trapezoid   c) Square

b) Triangle   d) Pentagon

13. What is the name of this shape?

a) Rectangle   c) Trapezoid

b) Parallelogram   d) Square

14. What is the name of this shape?

a) Rectangle   c) Trapezoid

b) Parallelogram   d) Square

15. What is the name of this shape?

a) Circle   c) Trapezoid

b) Square   d) Pentagon

16. What is the name of this shape?

a) Parallelogram   c) Trapezoid

b) Rectangle   d) Circle

17. Which shape does not have any angles?

a) Square   c) Trapezoid

b) Parallelogram   d) Circle

18. What is the name of this shape?

a) Trapezoid   c) Pentagon

b) Square   d) Circle

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19. How many sides does a trapezoid have?

       a) three   c) five

       b) four   d) six

20. How many angles are in a pentagon?

       a) three   c) five

       b) four   d) six

Name_____

GEOMETRIC SHAPE RECOGNITION ANSWER SHEET

	A	B	C	D
1.	☐	☐	☐	☐
2.	☐	☐	☐	☐
3.	☐	☐	☐	☐
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐
9.	☐	☐	☐	☐
10.	☐	☐	☐	☐

	A	B	C	D
11.	☐	☐	☐	☐
12.	☐	☐	☐	☐
13.	☐	☐	☐	☐
14.	☐	☐	☐	☐
15.	☐	☐	☐	☐
16.	☐	☐	☐	☐
17.	☐	☐	☐	☐
18.	☐	☐	☐	☐
19.	☐	☐	☐	☐
20.	☐	☐	☐	☐

Some math problems are the same whether they are written front-
wards or backwards. This is called <u>commutation</u>. Problems that are the
same frontwards or backwards are <u>commutative</u>.

Here are two types of math problems that are commutative. They are:

> Addition problems and
> Multiplication problems.

Look at these problems:

<u>Addition</u>	<u>Multiplication</u>
$4 + 2 = 2 + 4$	$5 \times 3 = 3 \times 5$
$6 = 6$	$15 = 15$

4 + 2 equals 6.	5 x 3 equals 15.
2 + 4 equals 6.	3 x 5 equals 15.
So 4 + 2 = 2 + 4,	So 5 x 3 = 3 x 5,
because <u>addition</u>	because <u>multiplication</u>
is <u>commutative</u>.	is <u>commutative</u>.

Here are two types of math problems that are not commutative:

<u>Subtraction</u>	<u>Division</u>
$4 - 2 = 2 - 4$	$6 \div 3 = 3 \div 6$
$2 = \text{(negative 2)}$	$2 = \frac{1}{2}$
WRONG	WRONG

4 - 2 equals 2.	6 ÷ 3 equals 2.
2 - 4 equals a nega-	3 ÷ 6 equals a fraction, ½.
tive number, -2.	So 6 ÷ 3 is <u>not</u> equal to
So 4 - 2 is <u>not</u>	3 ÷ 6 because <u>division</u>
equal to 2 - 4 because	<u>is not commutative</u>.
<u>subtraction is not</u>	
<u>commutative</u>.	

Instructions: Look at the problems below. Each one is a <u>commutative</u>
problem. Decide what is the missing number or the missing sign. Then look
at the answers and choose the correct one. Mark the correct answer on your
answer sheet.

Name_____

Examples:

X. $3 + 5 = \boxed{} + 3$

    a) 8   c) 5
    b) 3   d) 2

    A   B   C   D
    □   □   ⊠   □
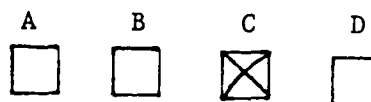
$3 + 5 = \underline{\text{what}} + 3$?

Addition is commutative, so
$3 + 5 = \underline{5} + 3$.

Y. $4 \boxed{} 6 = 6 \times 4$

    a) +   c) –
    b) x   d) ÷

    A   B   C   D
    □   ⊠   □   □
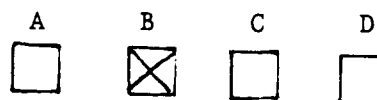
$4 \underline{\text{what}} 6$ equals 6×4? It
can't be c) – or d) ÷, because
<u>subtraction and division are</u>
<u>not commutative</u>. So is it
a) +, or b) x? Well, one side
of the problem already has a
sign.

    $4 \qquad 6 = 6 \times 4$

It is the <u>multiplication</u> sign.
So, since <u>multiplication is</u>
<u>commutative</u>, you know the answer
is b) x, because $4 \times 6 = 6 \times 4$.

Now do these problems the same way.

1. $5 + \boxed{} = 6 + 5$

    a) 5   c) 6
    b) 11 d) 1

2. $\boxed{} + 10 = 10 + 8$

    a) 18 c) 2
    b) 8   d) 10

3. $1 \times 2 = 2 \times \boxed{}$

    a) 1   c) 3
    b) 2   d) 4

4. $4 \times 12 = \boxed{} \times 4$

    a) 12 c) 8
    b) 16 d) 4

5. $6 + \boxed{} = 3 + 6$

    a) 12 c) 6
    b) 9   d) 3

6. $13 \times 2 = 2 \boxed{} 13$

    a) +   c) x
    b) –   d) ÷

Name_____

7. 8 ☐ 9 = 9 + 8

    a) +   c) x
    b) −   d) ÷

9. 15 ☐ 13 = 13 x 15

    a) +   c) x
    b) −   d) ÷

8. 6 + 7 = 7 ☐ 6

    a) +   c) x
    b) −   d) ÷

10. 4 + 8 = 8 ☐ 4

    a) +   c) x
    b) −   d) ÷

COMMUTATION ANSWER SHEET

	A	B	C				A	B	C	D
1.	☐	☐	☐	☐		6.	☐	☐	☐	☐
2.	☐	☐	☐	☐		7.	☐	☐	☐	☐
3.	☐	☐	☐	☐		8.	☐	☐	☐	☐
4.	☐	☐	☐	☐		9.	☐	☐	☐	☐
5.	☐	☐	☐	☐		10.	☐	☐	☐	☐

This lesson will show you how to figure out length and distance on straight lines. It will also show you how to figure out the perimeter length of different geometric shapes.

First, let's suppose your platoon leader told you that you were going on a 3-day march across different kinds of terrain. Since you can't travel at the same pace over every type of terrain, each day's travel would be a different distance when you marked it on your map.

```
           Day 1          Day 2          Day 3
      •--------------•--------------•--------------•
  Checkpoint     Checkpoint     Checkpoint     Checkpoint
    Alpha          Bravo         Charlie         Delta
```
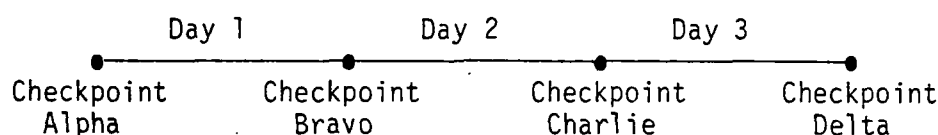
If your platoon leader asked you to tell him which day you marched the farthest, you could try to remember which day you walked the most hours or which day your feet hurt the most. But the best way to tell which day you went the farthest is to look at the map you marked each day, and pick out the longest line between two bivouac points.

```
            1st day              2nd day   3rd day
      •------------------•----------•----------•
  Checkpoint     ▲     Checkpoint Checkpoint Checkpoint
    Alpha              Bravo       Charlie     Delta
```
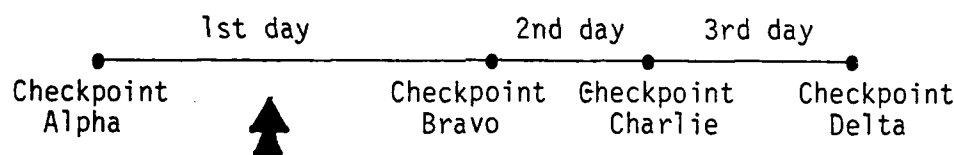
In looking at your map, you will see that the line between points Alpha and Bravo (where the arrow points) is the longest, so you know that you marched the farthest on the first day. You can also see that on the 2nd day you went the shortest distance, which must have been through the roughest terrain.

Now, if you wanted to find out how many miles you walked on those three days, you would add up the lengths of those three lines on your map

```
            1st day              2nd day   3rd day
      •------------------•----------•----------•
  Checkpoint         Checkpoint Checkpoint Checkpoint
    Alpha              Bravo     Charlie     Delta

      16 miles          7 miles  12 miles
         \                \          \                16
          \                \          \                7
           _____>     12
                                                      ‾‾
                                                      35
```
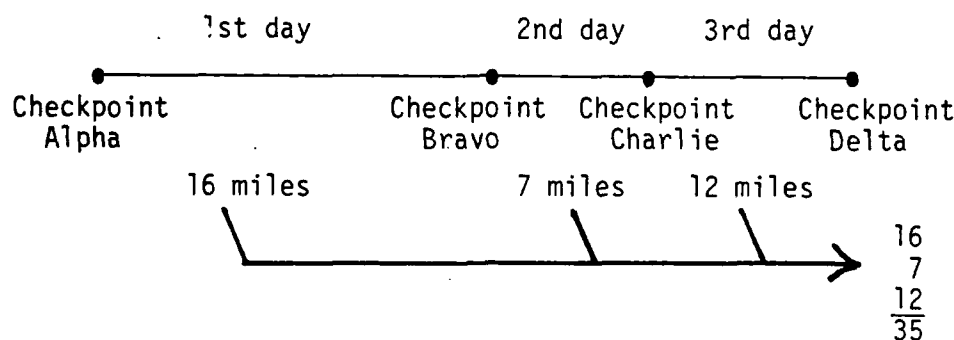
So you went 35 miles on your 3-day march.

Now let's suppose you have helped set up a defense perimeter, and your platoon leader wants you to figure out which part is the longest (which would take the most men).

Here is your defense perimeter.
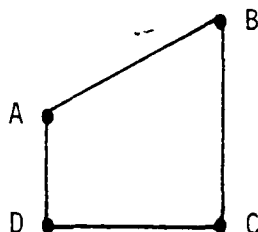
The part you would pick would be the line marked from B to C (Line BC) because it is the longest.

Next, your fearless leader wants to know how big a perimeter he has to defend, so he wants to know the distance around it. Guess who gets to figure that out. That's right, you volunteered again. This is done the same way as the earlier problem of finding how far you marched in 3 days. You merely add up all of the sides of your defense perimeter to get the total distance around it.

$$\begin{array}{r} 235 \\ 343 \\ 220 \\ \underline{225} \\ 1023 \text{ feet} \end{array}$$
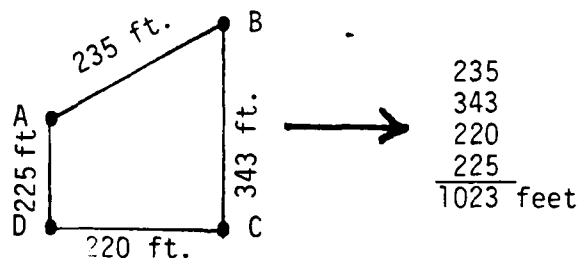
So now you can tell your platoon leader the distance around the defense perimeter is 1,023 feet.

Oops! Looks like you've volunteered again; this time to do some examples of what you've just learned.

Instructions: This is your platoon sergeant, SGT Kool. I want you to figure out the longest line for each problem, then add up all the lines to get the distance we marched or the distance around our defense perimeter.

Example:
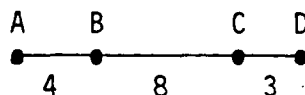
Longest Line __*BC*__

Total Distance __*15*__

Math Concepts (Continued)
Activity Sheet 4A
Length and Perimeters

Name_____

1. A   B   C

   •——————————•———•
        8   3

Longest Line_____
Total Distance_____

2.   •A
       7
        •B

         12
            •C
              3
               •D

Longest Line _____
Total Distance_____

3. A   B   C   D   E

   •————•—————•—————————•————•
      5   10   21   5

Longest Line _____
Total Distance _____

4. A   B   C   D   E

   •————•—————•——————————•——————————•
      6   9   17   23

Longest Line _____
Total Distance_____
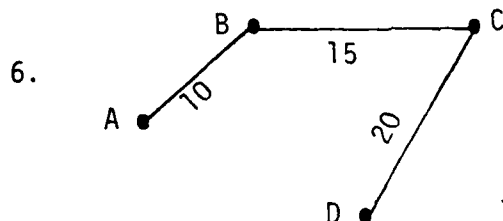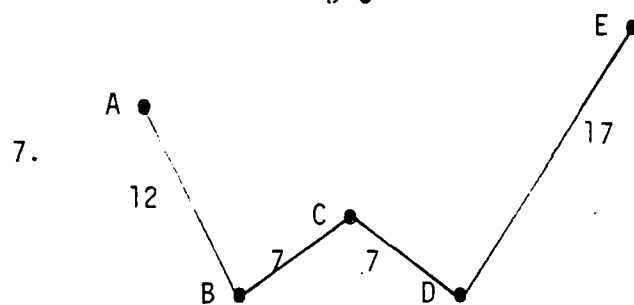
5.   •B
          14   16   •D   •F
   •A   •C   28   36
                  27   •E

Longest Line _____
Total Distance _____

229

Name_____

6.

B ● ———————15——————— ● C

10   20

A ●

D ●

Longest Line _____
Total Distance _____

7.

E ●

A ●

12   17

C ●

7   7

B ●   D ●

Longest Line _____
Total Distance _____

8.

B ●

7   6

A ● ———————11——————— ● C

Longest Line _____
Total Distance _____

9.

B ● ———————12——————— C ●

21

A ●

32

14

D ●

Longest Line _____
Total Distance_____

230

Name _____

10.

Longest Line _____
Total Distance _____

11.
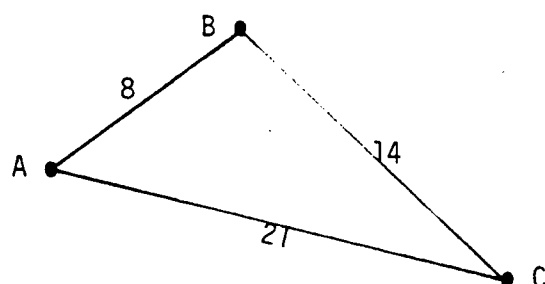
Longest Line _____
Total Distance _____

12.
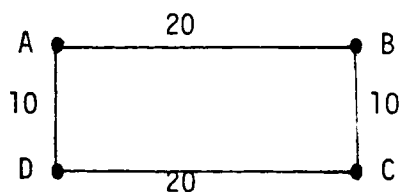
Longest Lines _____
Total Distance _____

13.

Longest Lines _____
Total Distance _____

Name _____

14.

Longest Lines _____
Total Distance _____

15.
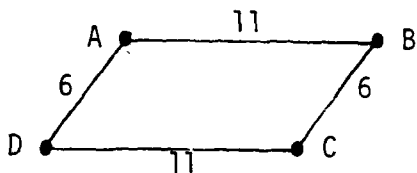
Longest Lines _____
Total Distance _____

The digits we use, 0 1 2 3 4 5 6 7 8 9, are called <u>Arabic numerals</u>. They were invented long ago by the Arabians. But there is another kind of numbering system that is sometimes used. It was invented by the Romans, and the numbers are called <u>Roman numerals</u>. Sometimes you will see Roman numerals used on books or in manuals. They are easy to learn and use, because they are based on <u>simple addition</u>.

Here are the most common Roman numerals and what they mean:

I = 1	L = 50
V = 5	C = 100
X = 10	D = 500
	M = 1000

To make numbers from Roman numerals, you just add together the different numerals to get your number.

I = 1

II = 1 + 1 = 2

III = 1 + 1 + 1 = 3

VII = 5 + 1 + 1 = 7

LXXVIII = 50 + 10 + 10 + 5 + 1 + 1 + 1 = 78

There is one trick to Roman numerals which you need to learn. You can't put <u>more than three of the same numerals</u> together. So how do you write, for instance, the number 4? Can't you just write IIII? No, you don't want to put more than three I's together. So instead, you write 4 as IV. This means "one-five" and you read it as "one <u>less than</u> five", or 4.

Whenever you put a <u>smaller</u> Roman numeral in front of a <u>larger</u> one, that means you <u>subtract</u> the smaller one from the larger one. Here are some examples:

IV = one less than five = 4

XL = ten less than fifty = 40

XC = ten less than one hundred = 90

CD = a hundred less than five hundred = 400

CM = a hundred less than one thousand = 900

Look at this year written in Roman numerals:

1979

MCMLXXIX   M = one thousand
             CM = one hundred less than one thousand, or nine hundred
             L = fifty
             XX = two tens = twenty
             IX = one less than ten, or nine

So this number means: one thousand plus nine hundred plus fifty plus twenty plus nine, or 1979.

Math Concepts (Continued)
Activity Sheet 5A
Roman Numerals   Name_____

Instructions: Look at the problems below. Choose the correct answer, and
mark the space for the answer on your answer sheet.

Examples: LXI = a) 60   c) 61   a   b   c   d
                      b) 41   d) 59   O   O   ●   O

               32 = a) XXLII   c) IIXXX   a   b   c   d
                     b) XIXIX   d) XXXII   O   O   O   ●

---

1.   II =   a) 1   c) 4   11. 193 = a) CCXIIVC   c) CXCIIV
             b) 2   d) 5   b) CXCIII   d) CCXIII

2.   V =   a) 100   c) 5   12. 81   = a) XXXLI   c) VIIII
             b) 10   d) 1   b) LXIXI   d) LXXXI

3.   C =   a) 100   c) 5   13. 15   = a) XV   c) IV
             b) 10   d) 1   b) XIV   d) VII

4.   MCM =   a) 2100   c) 1900   14. 29   = a) XIXII   c) XXVIIII
             b) 1009   d) 2010   b) XXXI   d) XXIX

5.   IV =   a) 3   c) 5   15. 412 = a) CDXII   c) DCIXI
             b) 4   d) 6   b) CDIIX   d) DIXII

6.   XVIII = a) 18   c) 52   16. 1892 = a) MDCCCXCII c) MCMLXXXXII
             b) 12   d) 14   b) MDMCXII   d) MCMXCII

7.   MIX =   a) 1900   c) 1009   17. 1982 = a) MCMVIII   c) MCMLXXXII
             b) 1110   d) 1011   b) MCMIVII   d) MCMXXCII

8.   DX =   a) 90   c) 550   18. 149 = a) CXLIX   c) CXXXXIX
             b) 510   d) 400   b) CLXIX   d) CXXXXVIIII

9.   XL =   a) 40   c) 60   19. 317 = a) CCCXVII   c) CCDXVII
             b) 50   d) 90   b) XXCXVII   d) DCCXVII

10. CLIX = a) 166   c) 161   20. 998 = a) IXIXVIIIC c) CMCXVIII
             b) 145   d) 159   b) XCXCVIII d) CMXCVIII

234

Math Concepts
Activity Sheet 5A
Roman Numerals
Answer Sheet

Name_____

	a	b	c	d			a	b	c	d
1.	○	○	○	○		11.	○	○	○	○
2.	○	○	○	○		12.	○	○	○	○
3.	○	○	○	○		13.	○	○	○	○
4.	○	○	○	○		14.	○	○	○	○
5.	○	○	○	○		15.	○	○	○	○
6.	○	○	○	○		16.	○	○	○	○
7.	○	○	○	○		17.	○	○	○	○
8.	○	○	○	○		18.	○	○	○	○
9.	○	○	○	○		19.	○	○	○	○
10.	○	○	○	○		20.	○	○	○	○

Math Concepts
Activity Sheet 1A
Mathematical Symbols

Name _____

ANSWER SHEET

	A	B	C	D
1.	X			
2.		X		
3.			X	
4.				X
5.			X	
6.		X		
7.		X		
8.			X	
9.				X
10.			X	

	A	B	C	D
11.		X		
12.				X
13.			X	
14.	X			

GEOMETRIC SHAPE RECOGNITION ANSWER SHEET

1.   A   B   C   D
      ■   □   □   □

2.   A   B   C   D
      □   □   ■   □

3.   A   B   C   D
      □   ■   □   □

4.   A   B   C   D
      □   □   □   ■

5.   A   B   C   D
      □   ■   □   □

6.   A   B   C   D
      □   ■   □   □

7.   A   B   C   D
      □   □   ■   □

8.   A   B   C   D
      □   □   □   ■

9.   A   B   C   D
      ■   □   □   □

10.   A   B   C   D
      □   □   ■   □

11.   A   B   C   D
      □   □   □   ■

12.   A   B   C   D
      □   ■   □   □

13.   A   B   C   D
      □   □   ■   □

14.   A   B   C   D
      □   ■   □   □

15.   A   B   C   D
      ■   □   □   □

16.   A   B   C   D
      □   ■   □   □

Name_____

GEOMETRIC SHAPE RECOGNITION ANSWER SHEET

17. A B C D
     ☐ ☐ ☐ ■

18. A B C D
     ☐ ☐ ■ ☐

19. A B C D
     ☐ ■ ☐ ☐

20. A B C D
     ☐ ☐ ■ ☐

Name_____

7. 8 ⬜ 9 = 9 + 8

   a) +   c) x
   b) −   d) ÷

8. 6 + 7 = 7 ⬜ 6

   a) +   c) x
   b) −   d) ÷

9. 15 ⬜ 13 = 13 x 15

   a) +   c) x
   b) −   d) ÷

10. 4 + 8 = 8 ⬜ 4

   a) +   c) x
   b) −   d) ÷

COMMUTATION ANSWER SHEET

	A	B	C	D
1.	☐	☐	☒	☐
2.	☐	☒	☐	☐
3.	☒	☐	☐	☐
4.	☒	☐	☐	☐
5.	☐	☐	☐	☒
6.	☐	☐	☒	☐
7.	☒	☐	☐	☐
8.	☒	☐	☐	☐
9.	☐	☐	☒	☐
10.	☒	☐	☐	☐

Name_____

1. A   B   C

    •———————•———•
        8   3

Longest Line_____AB_____
Total Distance____11_____

2.   •A

        7   •B

           12

              •C

               3 •D

Longest Line ____BC_____
Total Distance____22_____

3. A   B   C   D   E

    •——•————•————————•——•
      5   10   21   5

Longest Line ____CD_____
Total Distance ___41_____

4. A   B   C   D   E

    •——•————•————————•——————————•
      6   9   17   23

Longest Line ____DE_____
Total Distance____55_____

5.   B   F
       A   •
       • 14   •D
          16 •   28
             •C   27   •E   36
                            •

Longest Line ____EF_____
Total Distance ____121_____

Name_____

6.

B ● ———— ● C
15

10

A ●   20   ● D

Longest Line _____ CD _____

Total Distance _____ 45 _____

7.

E ●

A ●   17

12

C
B ● 7 ● 7 ● D

Longest Line _____ DE _____

Total Distance _____ 43 _____

8.

B ●

7   6

A ● 11 ● C

Longest Line _____ AC _____

Total Distance _____ 24 _____
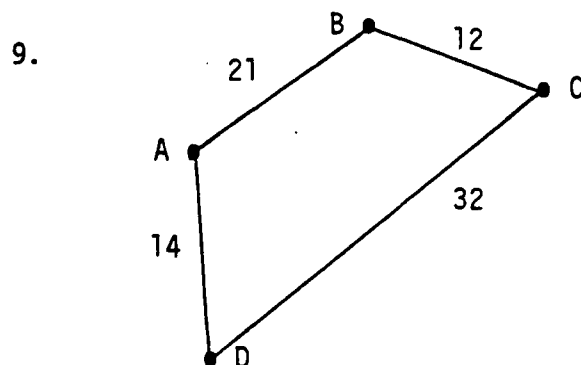
9.

B ● 12 ● C

21

A ●   32

14

● D

Longest Line _____ CD _____

Total Distance _____ 79 _____

Name _____

10.

A ——15—— B

10

D ——20—— C

12
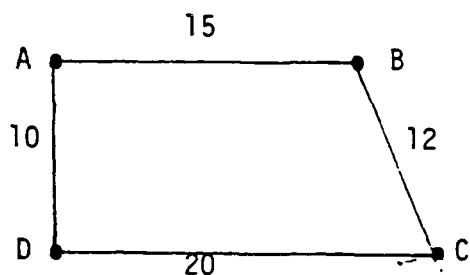
Longest Line ___CD___

Total Distance ___57___

11.

B

8

A

14

27

C

Longest Line ___AC___

Total Distance ___43___

12.

A ——20—— B

10   10

D ——20—— C
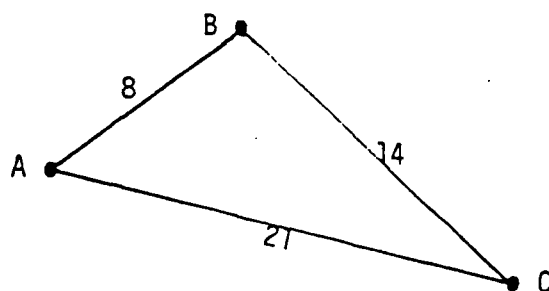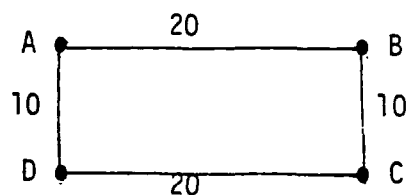
Longest Lines ___AB and CD___

Total Distance ___60___

13.

A ——10—— B

10   10

D ——10—— C
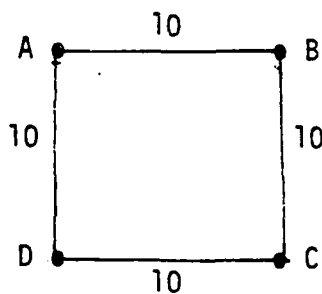
Longest Lines ___ALL___

Total Distance ___40___

Name _____

14.

```
        A •——————17——————• B
      13                    13
    D •——————17——————• C
```

Longest Lines ___AB and CD___

Total Distance ___60___

15.

```
      A •————11————• B
     6                6
   D •————11————• C
```

Longest Lines ___AB and CD___

Total Distance ___34___

Name_____

	a	b	c	d			a	b	c	d
1.	○	●	○	○		11.	○	●	○	○
2.	○	○	●	○		12.	○	○	○	●
3.	●	○	○	○		13.	●	○	○	○
4.	○	○	●	○		14.	○	○	○	●
5.	○	●	○	○		15.	●	○	○	○
6.	●	○	○	○		16.	●	○	○	○
7.	○	○	●	○		17.	○	○	●	○
8.	○	●	○	○		18.	●	○	○	○
9.	●	○	○	○		19.	●	○	○	○
10.	○	○	○	●		20.	○	○	○	●

Name_____

Instructions: Figure out each problem below. When you have worked the
problem, choose the correct answer. Then fill in the space
under the letter of the correct answer on the answer sheet.

Example: 12   a) 17   c) 50   a   b   c   d
             x 5   b) 60   d) 7   ☐   ■   ☐   ☐

7

1. The name of this number is:

    a) seven   c) one
    b) five   d) nine

2. In the number 8497, the "9"
    is in the:

    a) ones place   c) hundreds place
    b) tens place   d) thousands place

3. Which of these numbers is largest?

    a) 843   c) 657
    b) 799   d) 518

4. The number forty-two thousand, six
    hundred and seventy one is written:

    a) 42,671   c) 4,206,071
    b) 402,671   d) 42,000,671

5. In the number 6,492,835 which digit
    is in the thousands place?

    a) 2   c) 6
    b) 9   d) 4

6. 8
    +6

        a) 9   c) 2
        b) 15   d) 14

7. 7
    +4

        a) 15   c) 16
        b) 11   d) 12

8. 9 + 5 =

        a) 14   c) 12
        b) 18   d) 45

9. 6 + 7 =

        a) 14   c) 17
        b) 15   d) 13

10. 87
    +51

        a) 36   c) 228
        b) 128   d) 138

11. 43 + 41 =

        a) 92   c) 85
        b) 84   d) 95

12. 13
    +58

        a) 98   c) 71
        b) 61   d) 82

13. 78 + 59 =

        a) 19   c) 148
        b) 137   d) 127

14. 701
    +484

        a) 1285   c) 217
        b) 1185   d) 1717

Name_____

15. 978
     +569

     a) 1437   c) 1547
     b) 1527   d) 1427

16. 135 + 599 =

     a) 623   c) 724
     b) 633   d) 734

17. 935
     246
      71
     +9863

     a) 11,115   c) 11,108
     b) 10,904   d) 11,015

18. 11 + 84 + 78 + 8 =

     a) 212   c) 176
     b) 181   d) 191

19.   8
     -3

     a) 5   c) 11
     b) 8   d) 12

20. 9 - 5 =

     a) 14   c) 6
     b) 5   d) 4

21. 66
     -12

     a) 54   c) 52
     b) 78   d) 64

22. 57 - 31 =

     a) 88   c) 76
     b) 26   d) 37

23. 63
     -48

     a) 15   c) 25
     b) 105   d) 115

24. 35 - 16 =

     a) 28   c) 9
     b) 19   d) 51

25. 701
     -484

     a) 217   c) 327
     b) 285   d) 323

26. 8734 - 586 =

     a) 9320   c) 8258
     b) 8038   d) 8148

27. 3812
     -156

     a) 3766   c) 3666
     b) 3756   d) 3656

28.   9
     x5

     a) 36   c) 45
     b) 40   d) 14

29. 4 x 8 =

     a) 16   c) 32
     b) 82   d) 38

30. 41
     x3

     a) 123   c) 413
     b) 82   d) 38

31. 81 x 7 =

     a) 88   c) 458
     b) 567   d) 74

32. 44
     x4

     a) 176   c) 166
     b) 178   d) 328

33. 45
    x31
    a) 13545   c) 180
    b) 1385   d) 1395

34. 17
    x45
    a) 62   c) 765
    b) 825   d) 535

35. 197
    x302
    a) 49,499   c) 499
    b) 59,494   d) 37,384

36. 7/$\overline{14}$
    a) 2   c) 7
    b) 4   d) 3

37. 92 ÷ 4 =
    a) 96   c) 23
    b) 16   d) 368

38. 3/$\overline{36}$
    a) 11   c) 102
    b) 12   d) 21

39. 75 ÷ 15 =
    a) 5   c) 6
    b) 4   d) 15

40. 12/$\overline{60}$
    a) 6   c) 12
    b) 9   d) 5

41. 46 ÷ 5 =
    a) $8\frac{4}{5}$ c) 9.1
    b) $9\frac{1}{5}$ d) 8.5

42. 8/$\overline{65}$
    a) 8.1   c) $8\frac{1}{8}$
    b) $6\frac{8}{65}$ d) 8.8

43. 569 ÷ 97 =
    a) $5\frac{97}{84}$ c) 5.9784
    b) 5.84   d) $5\frac{84}{97}$

44. 19/$\overline{594}$
    a) $31\frac{5}{594}$ c) 31.5
    b) 31.19   d) $31\frac{5}{19}$

45. 4371 ÷ 509 =
    a) $8\frac{299}{509}$ c) 8.509
    b) 8.299   d) $8\frac{509}{299}$

46. 484/$\overline{1009}$
    a) 4.41484   c) $2\frac{48}{41}$
    b) $2\frac{41}{484}$ d) 2.41

MODULE PREVIEW

WHOLE NUMBERS

ANSWER SHEET

	a	b	c	d			a	b	c	d
1.	☐	☐	☐	☐		14.	☐	☐	☐	☐
2.	☐	☐	☐	☐		15.	☐	☐	☐	☐
3.	☐	☐	☐	☐		16.	☐	☐	☐	☐
4.	☐	☐	☐	☐		17.	☐	☐	☐	☐
5.	☐	☐	☐	☐		18.	☐	☐	☐	☐
6.	☐	☐	☐	☐		19.	☐	☐	☐	☐
7.	☐	☐	☐	☐		20.	☐	☐	☐	☐
8.	☐	☐	☐	☐		21.	☐	☐	☐	☐
9.	☐	☐	☐	☐		22.	☐	☐	☐	☐
10.	☐	☐	☐	☐		23.	☐	☐	☐	☐
11.	☐	☐	☐	☐		24.	☐	☐	☐	☐
12.	☐	☐	☐	☐		25.	☐	☐	☐	☐
13.	☐	☐	☐	☐		26.	☐	☐	☐	☐

	a	b	c	d
27.	☐	☐	☐	☐
28.	☐	☐	☐	☐
29.	☐	☐	☐	☐
30.	☐	☐	☐	☐
31.	☐	☐	☐	☐
32.	☐	☐	☐	☐
33.	☐	☐	☐	☐
34.	☐	☐	☐	☐
35.	☐	☐	☐	☐
36.	☐	☐	☐	☐

	a	b	c	d
37.	☐	☐	☐	☐
38.	☐	☐	☐	☐
39.	☐	☐	☐	☐
40.	☐	☐	☐	☐
41.	☐	☐	☐	☐
42.	☐	☐	☐	☐
43.	☐	☐	☐	☐
44.	☐	☐	☐	☐
45.	☐	☐	☐	☐
46.	☐	☐	☐	☐

MODULE PREVIEW/REVIEW

WHOLE NUMBERS

ANSWER KEY/DIAGNOSTIC

	a	b	c	d	IF WRONG, ASSIGN:			a	b	c	d	IF WRONG, ASSIGN:
1.	■	☐	☐	☐	1,10,11		14.	☐	■	☐	☐	8 - 11
2.	☐	■	☐	☐	1,10,11		15.	☐	☐	■	☐	8 - 11
3.	■	☐	☐	☐	1,10,11		16.	☐	☐	☐	■	9 - 11
4.	■	☐	☐	☐	1,10,11		17.	■	☐	☐	☐	10,11
5.	■	☐	☐	☐	1,10,11		18.	☐	■	☐	☐	11
6.	☐	☐	☐	■	2,10,11		19.	■	☐	☐	☐	12,13,19 - 21
7.	☐	■	☐	☐	2,10,11		20.	☐	☐	☐	■	12,13,19 - 21
8.	■	☐	☐	☐	3,10,11		21.	■	☐	☐	☐	14,15,19 - 21
9.	☐	☐	☐	■	3,10,11		22.	☐	■	☐	☐	14,15,19 - 21
10.	☐	☐	☐	■	4,7,10,11		23.	■	☐	☐	☐	16,17,19 - 21
11.	☐	■	☐	☐	4,7,10,11		24.	☐	■	☐	☐	16,17,19 - 21
12.	☐	☐	■	☐	6,7,10,11		25.	■	☐	☐	☐	18 - 21
13.	☐	■	☐	☐	6,7,10,11		26.	☐	☐	☐	■	19 - 21

	a	b	c	d	IF WRONG, ASSIGN:
27.	☐	☐	☐	■	19 - 21
28.	☐	☐	■	☐	22,23,29
29.	☐	☐	■	☐	22,23,29
30.	■	☐	☐	☐	24,25,29
31.	☐	■	☐	☐	24,25,29
32.	■	☐	☐	☐	26,27,29
33.	☐	☐	☐	■	26,27,29
34.	☐	☐	■	☐	28,29
35.	☐	■	☐	☐	28,29
36.	■	☐	☐	☐	30,31,35,36

	a	b	c	d	IF WRONG, ASSIGN:
37.	☐	☐	■	☐	30 - 33,35,36
38.	☐	■	☐	☐	30 - 33,35,36
39.	■	☐	☐	☐	30,32,35,36
40.	☐	☐	☐	■	30,32,35,36
41.	☐	■	☐	☐	34 - 36
42.	☐	☐	■	☐	34 - 36
43.	☐	☐	☐	■	34 - 36
44.	☐	☐	☐	■	34 - 36
45.	■	☐	☐	☐	34 - 36
46.	☐	■	☐	☐	34 - 36

MODULE RECORD SHEET

WHOLE NUMBERS

OBJECTIVE: Use addition, subtraction, multiplication, or division to find the correct answer for any problem with whole numbers.

SAMPLE TEST ITEMS:

1. 36
    +48   a) 438   c) 12   a   b   c   d
             b) 74   d) 84   ☐ ☐ ☐ ▨

2. 18 ÷ 3 +   a) 9   c) 3   a   b   c   d
              b) 6.– d) 21   ☐ ▨ ☐ ☐

INTRODUCTION TO WHOLE NUMBERS:

    Whole numbers are numbers made out of the digits from 0 to 9. They do not include fractions or decimals. These activity sheets will show you how to add, subtract, multiply, or divide numbers that do not have fractions or decimal places. Work through all the activity sheets that have been circled below. You can check your own work using the check sheets your teacher has shown you. If you have any questions, ask your teacher. When you are through with all the activity sheets and are sure you understand all the rules for whole numbers, ask to take the Whole Numbers Review.

ACTIVITY SHEETS (Do those that are circled)

ADDITION

1.	Introduction to Numbers	1A	1B
2.	Adding Two one-Digit Numbers: Columns	2A	2B
3.	Adding Two One-Digit Numbers: Rows	3A	3B
4.	Adding Two-Digit Numbers: Columns	4A	4B
5.	Adding Two-Digit Numbers: Row	5A	5B
6.	Carrying: Numbers in a Column	6A	6B
7.	Carrying: Numbers in a Row	7A	7B
8.	Adding Two Three-Digit Numbers in a Column	8A	8B
9.	Adding Two Three-Digit Numbers in a Row	9A	9B
10.	Practice Numbers in Columns: Addition	10A	10B
11.	Practice Numbers in Rows: Addition	11A	11B

SUBTRACTION

12.	Subtracting Two One-Digit Numbers: Columns	12A	12B
13.	Subtracting Two One-Digit Numbers: Rows	13A	13B
14.	Subtracting Two-Digit Numbers: Column	14A	14B
15.	Subtracting Two-Digit Numbers: Row	15A	15B

SUBTRACTION   (Continued)

16.	Borrowing: Numbers in a Column	16A	16B
17.	Borrowing: Numbers in a Row	17A	17B
18.	Subtracting Two Three-Digit Numbers in a Column	18A	18B
19.	Checking Subtraction by Adding	19A	19B
20.	Practice Numbers in Rows: Subtraction	20A	20B
21.	Practice Numbers in Columns: Subtraction	21A	21B

MULTIPLICATION

22.	Multiplying Two One-Digit Numbers: Columns	22A	22B
23.	Multiplying Two One-Digit Numbers: Rows	23A	23B
24.	Multiplying One Digit Times Two Digits: Column	24A	24B
25.	Multiplying Two-Digit Numbers: Rows	25A	25B
26.	Carrying: Numbers in a Column	26A	26B
27.	Multiplying Two-Digit Numbers	27A	27B
28.	Carrying: Two-Digit Numbers	28A	28B
29.	Multiplying Three-Digit Numbers	29A	29B

DIVISION

30.	Dividing and Multiplying are Related	30A	30B
31.	Dividing One Digit Into One or Two	31A	31B
32.	Converting from $\div$ to $/\overline{}$	32A	32B
33.	Dividing One Digit Into Two Digits	33A	33B
34.	Dividing One Digit Into Two with a Remainder	34A	34B
35.	Dividing Two Digits Into Three Digits	35A	35B
36.	Dividing Three Digits Into Four Digits	36A	36B

Name_____

Instructions: Figure out each problem below. When you have worked the
problem, choose the correct answer. Then fill in the space
under the letter of the correct answer on the answer sheet.

Example: 12   a) 17   c) 50   a   b   c   d
               x 5   b) 60   d) 7   ☐   ■   ☐   ☐

4

1. The name of this number is:

    a) four   c) six
    b) one   d) nine

2. In the number 6,492,835 which digit
    is in the thousands place?

    a) 4   c) 9
    b) 2   d) 8

3. Which of these numbers is smallest?

    a) 197   c) 400
    b) 311   d) 532

4. The number sixteen thousand, eight hundred
    and eight is written:

    a) 16,808   c) 16,000,808
    b) 16,080,008   d) 168,008

5. In the number 9362, the "9" is in the:

    a) thousands place c) tens place
    b) hundreds place   d) ones place

6.   5
    +8

        a) 11   c) 15
        b) 18   d) 13

7.   9
    +3

        a) 11   c) 13
        b) 12   d) 19

8. 8 + 6 =

        a) 14   c) 15
        b) 16   d) 18

9. 4 + 5 =

        a) 15   c) 11
        b) 8   d) 9

10.   45
      +33

        a) 68   c) 88
        b) 76   d) 78

11. 92 + 93 =

        a) 165   c) 195
        b) 185   d) 95

12.   53
      +37

        a) 80   c) 90
        b) 87   d) 93

13. 87 + 24 =

        a) 107   c) 119
        b) 111   d) 101

14.   909
      +435

        a) 1234   c) 1244
        b) 1344   d) 1356

15. 815
     +807

     a) 1627   c) 1622
     b) 1707   d) 1612

16. 195 + 594 =

     a) 689   c) 698
     b) 729   d) 789

17. 4033
       84
     8768
     + 105

     a) 12990   c) 12870
     b) 12980   d) 12880

18. 167 + 199 + 6 + 443 =

     a) 695   c) 865
     b) 815   d) 955

19.   6
     -4

     a) 2   c) 3
     b) 10   d) 7

20. 9 - 7 =

     a) 5   c) 16
     b) 12   d) 2

21.   45
     -33

     a) 12   c) 13
     b) 78   d) 23

22. 96 - 15 =

     a) 71   c) 111
     b) 81   d) 80

23.   65
     -26

     a) 39   c) 49
     b) 81   d) 91

24. 95 - 68 =

     a) 46   c) 37
     b) 27   d) 28

25. 500
     -379

     a) 121   c) 131
     b) 221   d) 231

26. 972 - 748 =

     a) 234   c) 334
     b) 124   d) 224

27. 6885
     - 598

     a) 6397   c) 6387
     b) 6297   d) 6287

28.   5
     x7

     a) 12   c) 35
     b) 42   d) 28

29. 8 x 6 =

     a) 36   c) 48
     b) 14   d) 54

30. 62
     x4

     a) 248   c) 88
     b) 66   d) 328

31. 40 x 8 =

     a) 240   c) 328
     b) 320   d) 288

32. 98
     x6

     a) 588   c) 104
     b) 548   d) 102

33. 37
   x51
   a) 18537   c) 222
   b) 1787   d) 1887

34. 84
   x99
   a) 1452   c) 8316
   b) 1512   d) 7986

35. 554
   x109
   a) 10526   c) 59956
   b) 60386   d) 10096

36. 9/ 72
   a) 8   c) 9
   b) 6   d) 7

37. 64 ÷ 4 =
   a) 11   c) 16
   b) 26   d) 14

38. 5/ 70
   a) 52   c) 12
   b) 14   d) 54

39. 77 ÷ 11 =
   a) 7   c) 16
   b) 11   d) 10

40. 13/ 39
   a) 2   c) 4
   b) 9   d) 3

41. 19 ÷ 5 =
   a) 3.45   c) $3\frac{5}{4}$
   b) $3\frac{4}{5}$ d) 3.5

42. 3/ 89
   a) $29\frac{3}{9}$ c) $29\frac{2}{3}$
   b) $29\frac{3}{2}$ d) 29.23

43. 929 ÷ 52 =
   a) $17\frac{52}{929}$ c) $17\frac{52}{45}$
   b) $17\frac{929}{45}$ d) $17\frac{45}{52}$

44. 65/ 246
   a) $3\frac{6}{51}$ c) 3.65
   b) 3.51   d) $3\frac{51}{65}$

45. 8513 ÷ 313 =
   a) $27\frac{62}{313}$ c) 85.313
   b) $27\frac{62}{8513}$ d) 14.928

46. 225/ 2706
   a) $12\frac{225}{2706}$ c) $12\frac{6}{2706}$
   b) $12\frac{6}{225}$ d) 12.6

Name_____

MODULE REVIEW
WHOLE NUMBERS
ANSWER SHEET

	a	b	c	d			a	b	c	d
1.	☐	☐	☐	☐		14.	☐	☐	☐	☐
2.	☐	☐	☐	☐		15.	☐	☐	☐	☐
3.	☐	☐	☐	☐		16.	☐	☐	☐	☐
4.	☐	☐	☐	☐		17.	☐	☐	☐	☐
5.	☐	☐	☐	☐		18.	☐	☐	☐	☐
6.	☐	☐	☐	☐		19.	☐	☐	☐	☐
7.	☐	☐	☐	☐		20.	☐	☐	☐	☐
8.	☐	☐	☐	☐		21.	☐	☐	☐	☐
9.	☐	☐	☐	☐		22.	☐	☐	☐	☐
10.	☐	☐	☐	☐		23.	☐	☐	☐	☐
11.	☐	☐	☐	☐		24.	☐	☐	☐	☐
12.	☐	☐	☐	☐		25.	☐	☐	☐	☐
13.	☐	☐	☐	☐		26.	☐	☐	☐	☐

27.

	a	b	c	d
	☐	☐	☐	☐

28.

	a	b	c	d
	☐	☐	☐	☐

29.

	a	b	c	d
	☐	☐	☐	☐

30.

	a	b	c	d
	☐	☐	☐	☐

31.

	a	b	c	d
	☐	☐	☐	☐

32.

	a	b	c	d
	☐	☐	☐	☐

33.

	a	b	c	d
	☐	☐	☐	☐

34.

	a	b	c	d
	☐	☐	☐	☐

35.

	a	b	c	d
	☐	☐	☐	☐

36.

	a	b	c	d
	☐	☐	☐	☐

37.

	a	b	c	d
	☐	☐	☐	☐

38.

	a	b	c	d
	☐	☐	☐	☐

39.

	a	b	c	d
	☐	☐	☐	☐

40.

	a	b	c	d
	☐	☐	☐	☐

41.

	a	b	c	d
	☐	☐	☐	☐

42.

	a	b	c	d
	☐	☐	☐	☐

43.

	a	b	c	d
	☐	☐	☐	☐

44.

	a	b	c	d
	☐	☐	☐	☐

45.

	a	b	c	d
	☐	☐	☐	☐

46.

	a	b	c	d
	☐	☐	☐	☐

Whole Numbers - Addition
Activity Sheet 1A
Introduction to Numbers

Name_____

We only have ten symbols to represent numbers. These symbols are called digits, and they are:

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

(zero) (one) (two) (three)(four) (five) (six) (seven)(eight)(nine)

But we have many more than ten numbers. Numbers above nine are written by putting two or more of our digits together to make a new symbol. The symbol for the number fifteen, which is written 15, uses two digits: a one (1) and a five (5).

The digit on the right represents <u>ones</u>. There are five ones in the number 15. The next symbol or digit to the left represents <u>tens</u>. There is one ten in the number 15. One ten and five ones equal 15.

The next place to the left of the tens place is called the hundreds place. The next one after that is for thousands, and so on. Each place holds ten times as much as the place to the right of it.

There are 5,280 feet in a mile. The number 5,280 means:

$$
\begin{array}{ll}
& 5 \quad \text{thousands} \\
+ & 2 \quad \text{hundreds} \\
+ & 8 \quad \text{tens} \\
+ & 0 \quad \text{ones} \\
\hline
= & 5280
\end{array}
$$

Here are all the number places up to the millions place:

millions hundred thousands ten thousands thousands hundreds tens ones

8, 7 6 5, 4 3 2

This number is eight million, seven hundred sixty-five thousand, four hundred and thirty-two. Most of the numbers you will work with in the Army aren't nearly this big, but you do need to understand how even big numbers are put together.

On the next page are some problems about number names and places. Try them out; they are really quite easy.

Whole Numbers – Addition
Activity Sheet 1A (Continued)   Name_____
Introduction to Numbers: Problems

Instructions: Read each problem below and choose the right answer from
the choices given. Write the letter of the right answer on the line to the
right of the problem. If you get stuck on one problem, go on to the next one
and then come back to the tough ones later.

Example: The number four is written:
          (a) 5   (c) 7   (e) 8
          (b) 1   (d) 4   ._   ___d___

                                                     Write the
                                                     letter of
                                                     the right
                                                     answer

1. The number fifteen is written:
          (a) 55   (c) 51   (e) 105   1. _____
          (b) 15   (d) 510

2. In the number 8497, the "7" is in the:
          (a) ones place   (c) hundreds place   2. _____
          (b) tens place   (d) thousands place

3. The name of the number "94" is:
          (a) nine   (c) nine hundred and four   3. _____
          (b) forty-nine   (d) ninety-four

4. Which of these numbers has "1" in the hundreds' place?
          (a) 6291   (c) 4132   4. _____
          (b) 1875   (d) 2817

5. Which of these numbers is the largest?
          (a) 843   (c) 657   (e) 882   5. _____
          (b) 799   (d) 518

6. In the number 6,492,835 which digit is in the thousands place?
          (a) 4   (c) 2   (e) 6   6. _____
          (b) 9   (d) 8

7. The number seven is written:
          (a) 5   (c) 2   (e) 7   7. _____
          (b) 1   (d) 9

8. Which of these numbers is smallest?
          (a) 311   (c) 400   (e) 109   8. _____
          (b) 197   (d) 532

9. Which of these is not the name of a number?
          (a) seven   (c) tree   9. _____
          (b) sixty-two   (d) forty-five

10. The number forty-two thousand, six hundred and seventy one is written:
          (a) 42,671   (c) 4,206,071   10. _____
          (b) 402,671   (d) 42,000,671

Whole Numbers - Addition
Activity Sheet 2A   Name_____
Adding Two One-Digit Numbers: Columns

The numbers from 0 to 9 are called one-digit numbers. Here are some problems
in which you must add two one-digit numbers together. They are arranged in columns,
that is, with one number over the other.

Instructions: Add each column of one-digit numbers and write the sum below
the line.

```
                    1         8          9
Examples:          +4        +3      ⌐  +0
                   ──        ──         ──
                    5        11          9
```

```
    3           1           7           5           1
   +4          +8          +4          +8          +5
   ──          ──          ──          ──          ──
```

```
    2           4           7           7           1
   +5          +8          +9          +6          +0
   ──          ──          ──          ──          ──
```

```
    6           3           4           7           9
   +7          +3          +2          +7          +3
   ──          ──          ──          ──          ──
```

```
    6           3           8           5           7
   +6          +8          +6          +7          +3
   ──          ──          ──          ──          ──
```

```
    8           7           0           4           0
   +0          +7          +7          +6          +9
   ──          ──          ──          ──          ──
```

```
    8           2           2           5           1
   +4          +0          +4          +1          +5
   ──          ──          ──          ──          ──
```

```
    8           1           9           2           9
   +9          +1          +5          +3          +9
   ──          ──          ──          ──          ──
```

```
    0           7           0           6           6
   +3          +4          +4          +0          +8
   ──          ──          ──          ──          ──
```

Whole Numbers – Addition
Activity Sheet 3A   Name_____
Adding Two One-Digit Numbers: Rows

   In these problems, the one-digit numbers are arranged in rows.

   Instructions: Add each row of one-digit numbers and write the sum to the
right of the equals (=) sign.

   Examples: 1+4=5   8+3=11   9+0=9

1 + 5 =   1 + 0 =   9 + 3 =   7 + 3 =

0 + 9 =   1 + 6 =   9 + 9 =   6 + 8 =

6 + 0 =   2 + 3 =   5 + 1 =   4 + 6 =

5 + 7 =   7 + 7 =   7 + 6 =   5 + 8 =

7 + 4 =   7 + 9 =   4 + 2 =   8 + 6 =

0 + 7 =   2 + 4 =   9 + 5 =   0 + 4 =

7 + 4 =   1 + 1 =   2 + 0 =   7 + 7 =

3 + 8 =   3 + 3 =   4 + 8 =   1 + 8 =

3 + 4 =   2 + 5 =   6 + 7 =   6 + 6 =

8 + 0 =   8 + 4 =   8 + 9 =   0 + 3 =

Whole Numbers - Addition
Activity Sheet 4A   Name_____
Adding Two-Digit Numbers: Column

> When you have bigger numbers to add, you add them together from right to
> left. For instance, if you want to add
>
> $$\begin{array}{r} 21 \\ +53 \\ \hline \end{array}$$ you must first add the right hand
>
> column, the 1 and the 3. This gives you 4 in the right-hand answer space.
>
> $$\begin{array}{r} 21 \\ +53 \\ \hline 4 \end{array}$$
>
> Then you add the numbers in the left-hand column. 2 + 5= 7. This gives you
>
> $$\begin{array}{r} 21 \\ +53 \\ \hline 74 \end{array}$$ and that is the solution to the problem.

Instructions: Add the numbers in the problems on this page and write your
answers below the line. Remember to add the right-hand column first.

Examples:

40	92	20
+43	+15	+10
83	107	30

41	66	37	13	20
+43	+61	+51	+81	+32

16	90	30	12	45
+72	+16	+82	+66	+33

94	90	62	23	51
+93	+18	+24	+12	+10

92	90	17	40	85
+84	+40	+90	+88	+83

46	22	91	73	60
+40	+43	+65	+60	+93

20	45	36	81	29
+92	+24	+12	+87	+70

Adding numbers side-by-side is a little bit tricky. The numbers aren't neatly lined up in columns for you. But if you remember to work from the right to the left, it isn't hard. In the problem 21+53= ____, you first add the right-hand numbers (the numbers in the ones place), and write down the answer on the right side of your answer space, like this: 21+53= ___4 (because 1+3=4). Then add the numbers in the tens place, the 2 and the 5, and write your answer to the left of the answer you got before, like this: 21+53= __74. This is your answer.

Instructions: Add the numbers in the problems on this page and write down your answers to the right of the equals signs.

Examples: 40+43= 83   92+15= 107   20+10= 30

41 + 43 =	66 + 61 =	37 + 51 =	13 + 81 =
20 + 32 =	45 + 33 =	51 + 10 =	85 + 83 =
60 + 93 =	29 + 70 =	93 + 40 =	73 + 95 =
67 + 22 =	20 + 34 =	81 + 45 =	22 + 95 =
10 + 27 =	20 + 97 =	46 + 40 =	92 + 93 =
16 + 72 =	90 + 16 =	30 + 82 =	12 + 66 =
23 + 12 =	40 + 88 =	73 + 60 =	81 + 87 =
21 + 83 =	55 + 42 =	51 + 14 =	45 + 24 =

Name_____

When the numbers in a column you are adding add up to more than 9, you have
a *two-digit* answer. It won't fit into one column in the answer space. You need
to "carry" the first digit over and add it onto the next column to the left.
For example, in the problem

$$37$$
$$+56$$

7 plus 6 equals 13. There is not enough space
to fit the 13 under the ones column in the
problem.

But since 13 is the same as a ten and three ones, you can take the "1" in the tens
place and add it to the top of the tens column in the problem, like this:

①
$$37$$
$$+56$$
$$3$$

Now you can go ahead and add the tens column up
and finish the problem. The finished problem
will look like this:

①
$$37$$
$$+56$$
$$93$$

Instructions: Add the numbers in the problems on these pages, and carry over
numbers to the next column when you need to.

Examples:

①
$$24$$
$$+19$$
$$43$$

①
$$86$$
$$+58$$
$$144$$

①
$$59$$
$$+33$$
$$92$$

(You don't have to draw the lines to show that you carried a number up to the
top of the next column; just put the number up there.)

65	84	68	87	35
+26	+99	+43	+17	+56

59	17	53	26	15
+28	+45	+37	+25	+27

66	99	13	15	34
+55	+54	+47	+35	+67

99	16	41	65	39
+14	+89	+29	+97	+93

Whole Numbers - Addition
Activity Sheet 6A, Continued   Name_____
Carrying: Numbers in a Column

| 55 | 66 | 25 | 87 | 67 |
| +97 | +24 | +98 | +24 | +83 |

| 45 | 48 | 87 | 59 | 69 |
| +67 | +56 | +29 | +51 | +46 |

| 62 | 57 | 49 | 65 | 78 |
| +18 | +73 | +44 | +48 | +59 |

| 56 | 98 | 14 | 88 | 54 |
| +87 | +96 | +37 | +64 | +29 |

Whole Numbers - Addition
Activity Sheet 7A   Name_____
Carrying: Numbers in a Row

When your problem is arranged in a row, you don't have a nice handy column
for the number you carried to go above. You can put that number above the proper
digit in the first number of the problem, like this:

$$\overset{1}{37} + 56 = \underline{\quad 3\quad}$$

The 1 represents a ten, so be sure you put it above a number which is in a tens
place. Then when you add the numbers in the tens places, don't forget to add
the number you carried over!

$$\overset{1}{37} + 56 = \underline{\ 93\ } \quad \text{because } 7 + 6 = 13 \text{ and you carried}$$
$$\text{the 1, then } 1 + 3 + 5 = 9.$$

Instructions: Add the numbers in the problems on this page, and carry
numbers back to the proper place whenever you need to.

Examples: $\overset{1}{24} + 19 = 43$ $\overset{1}{86} + 58 = 144$ $\overset{1}{59} + 33 = 92$

35 + 56 =   15 + 27 =   34 + 67 =   39 + 93 =

67 + 83 =   69 + 46 =   78 + 59 =   54 + 29 =

88 + 64 =   65 + 48 =   59 + 51 =   87 + 24 =

65 + 97 =   15 + 35 =   26 + 25 =   87 + 17 =

68 + 43 =   53 + 37 =   13 + 47 =   41 + 29 =

25 + 98 =   87 + 29 =   49 + 44 =   14 + 37 =

98 + 96 =   57 + 73 =   48 + 56 =   66 + 24 =

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Whole Numbers - Addition
Activity Sheet 8A
Adding Two Three-Digit Numbers in a Column

Name_____

In these problems you are adding bigger numbers. You may have to carry over numbers to the next column. In some problems you may have to carry over numbers twice – once to the tens column and once to the hundreds column.

Instructions: Add the numbers on this page and put the answers below the line. Carry over numbers whenever you need to.

Examples:

```
  ①          ⑪          ①
 347        159        261
+416       +743       +884
 763       ·902       1145
```

(You don't have to draw the lines to show you carried the numbers.)

```
  197        834        391        554        909
 +217       +635       +566       +109       +435
```

```
  854        592        225        101        345
 +834       +102       +270       +117       +302
```

```
  506        714        523        379        978
 +954       +785       +929       +500       +569
```

```
  195        813        590        357        368
 +594       +804       +491       +920       +822
```

```
  658        505        342        701        320
 +246       +327       +122       +484       +465
```

```
  108        135        131        760        268
 +994       +599       +206       +939       +182
```

Whole Numbers – Addition
Activity Sheet 9A   Name_____
Adding Two Three-Digit Numbers in a Row

> Here are some problems where you may have to carry over numbers from one part of the answer back to the beginning of the problem. Solve them like you did using two-digit numbers, except that you may have to carry twice.

Instructions: Add the numbers in the problems on this page, and carry numbers back to the proper place when you need to.

Examples:
$$1 \qquad \qquad 11 \qquad \qquad 1$$
$$347 + 416 = 763 \qquad 159 + 743 = 902 \qquad 261 + 884 = 1145$$

368 + 822 =   197 + 217 =   322 + 665 =   658 + 246 =

357 + 920 =   834 + 635 =   303 + 140 =   505 + 327 =

590 + 491 =   391 + 566 =   216 + 153 =   342 + 122 =

813 + 804 =   554 + 109 =   290 + 619 =   701 + 484 =

195 + 594 =   909 + 435 =   494 + 928 =   320 + 465 =

978 + 569 =   854 + 834 =   310 + 842 =   108 + 994 =

379 + 500 =   592 + 102 =   251 + 404 =   135 + 599 =

523 + 929 =   225 + 270 =   646 + 978 =   131 + 206 =

Whole Numbers – Addition
Activity Sheet 10A   Name_____
Practice Numbers in Columns: Addition

Try your skill now at adding all kinds of problems in columns. Sometimes you will have to carry numbers, and sometimes you will not.

Instructions: Add the numbers in the problems on this page, and put your answers below the lines. Sometimes you will need to carry numbers. Write the numbers you carry above the proper columns.

Examples:

```
  241              11             1
  241            642           1086
  +56           +879           +105
  + 2           ────           +807
 ────           1521           ────
  299                          1998
```

(You don't have to draw the lines to show you carried a number.)

```
    3            71           795           51            2
   76             4           888           18           97
  +33           + 5           + 9          +11          +31
  ───           ───           ───          ───          ───


  981           100           175          610         6854
  + 15          + 6          +446          + 3         + 131
  ───           ───          ────          ───         ─────


  130           468           633          972          556
  903           166           688          748          545
  + 14          + 23         +460          + 57         +920
  ───           ───          ────          ───          ───


    3            56           324           34           11
   60             3           380           24           69
  +87           + 6           + 8          + 0          +85
  ───           ───           ───          ───          ───


  780            11            38          167            1
  290            84            13          199           30
   51            78             5            6            2
  +565           + 8          +72          +442          +41
  ────           ───          ───          ────          ───


 4371           156           445         1009          181
 6885          3035            34          578          484
  509            29            15            1           87
  + 86          +3812         +695          +809         +126
  ────          ─────         ────          ────         ────


  271           531          4033          935           63
 8902           938            84          246          313
 2110          6285          8768           54         8513
  + 16          + 3          + 105         +9469        + 157
  ────          ───          ─────         ─────        ─────
                             270
```

Here are several problems arranged in rows for you to try. Sometimes you will have to carry numbers and sometimes you will not.

Instructions: Add the numbers in the problems on this page, and put your answers to the right of the equals sign. Sometimes you will need to carry numbers. Write the numbers you carry above the proper place in the first number of the problem.

Examples:

	11	1
241+56+2= 299	642+879= 1521	1086+105+807= 1998

84 + 22 =   689 + 29 =   14 + 290 =

68 + 92 =   353 + 86 =   3 + 76 + 33 =

2 + 97 + 31 =   6854 + 131 =   556 + 545 + 920 =

11 + 69 + 85 =   1 + 30 + 2 + 41 =   51 + 18 + 11 =

610 + 3 =   972 + 748 + 57 =   34 + 24 + 0 =

167 + 199 + 6 + 443 =   795 + 888 + 9 =   175 + 446 =

633 + 688 + 460 =   324 + 380 + 8 =   38 + 13 + 5 + 72 =

71 + 4 + 5 =   100 + 6 =   468 + 166 + 23 =

56 + 3 + 6 =   11 + 84 + 78 + 8 =   156 + 3035 + 29 =

891 + 15 =   130 + 903 + 14 =   3 + 60 + 87 =

Whole Numbers – Subtraction
Activity Sheet 12A   Name_____
Subtracting Two One-Digit Numbers: Columns

> The numbers from 0 to 9 are called one-digit numbers. Here are some problems in which you must subtract two one-digit numbers from each other. They are arranged in columns, that is, with one number over the other.

Instructions: Subtract each column of one-digit numbers from each other and write the difference below the line.

Examples:

	4	8	9
	-1	-3	-0
	3	5.	9

4	8	7	8	5
-3	-1	-4	-5	-1

5	8	9	7	1
-2	-4	-7	-6	-0

7	3	4	7	9
-6	-3	-2	-7	-3

6	8	8	7	7
-6	-3	-6	-5	-3

8	7	7	6	9
-0	-7	-0	-4	-0

8	2	4	5	5
-4	-0	-2	-1	-4

9	1	9	3	9
-8	-1	-5	-2	-9

3	7	4	6	8
-0	-4	-0	-0	-6

Whole numbers – Subtraction
Activity Sheet 13A
Subtracting Two One-Digit Numbers: Rows

Name_____

In these problems, the one-digit numbers are arranged in rows.

Instructions: Subtract the second number from the first number and write the difference to the right of the equals (=) sign.

Examples: 4-1=3   8-3=5   9-0=9

5 - 1 =	1 - 0 =	9 - 3 =	7 - 3 =
9 - 0 =	6 - 1 =	9 - 9 =	8 - 6 =
6 - 0 =	3 - 2 =	5 - 1 =	6 - 4 =
7 - 5 =	7 - 7 =	7 - 6 =	8 - 8 =
7 - 4 =	9 - 7 =	4 - 2 =	8 - 6 =
7 - 0 =	4 - 2 =	9 - 5 =	4 - 0 =
6 - 4 =	1 - 1 =	2 - 0 =	7 - 7 =
8 - 3 =	3 - 3 =	8 - 4 =	8 - 1 =
4 - 3 =	5 - 2 =	7 - 6 =	6 - 6 =
8 - 0 =	8 - 4 =	7 - 4 =	3 - 0 =

When you have bigger numbers to subtract, you subtract them from each other from right to left. For instance, if you want to subtract

$$
\begin{array}{r}
53 \\
-21 \\
\hline
\end{array}
$$

you must first subtract the right hand column, the 3 and the 1. This gives you 2 in the right-hand answer space.

$$
\begin{array}{r}
53 \\
-21 \\
\hline
2
\end{array}
$$

Then you subtract the numbers in the left-hand column. 5 - 2 = 3. This gives you

$$
\begin{array}{r}
53 \\
-21 \\
\hline
32
\end{array}
$$
and that is the solution to the problem.

Instructions: Subtract the numbers in the problems on this page and write your answers below the line. Remember to subtract the right-hand column first.

Examples:	43	95	20		
	$\frac{-40}{3}$	$\frac{-12}{83}$	$\frac{-10}{10}$		

43	66	57	83	32
−41	−61	−31	−11	−20

76	96	82	66	45
−12	−10	−30	−12	−33

94	98	64	23	51
−93	−35	−22	−12	−10

94	90	97	88	85
−82	−40	−35	−40	−83

46	43	95	73	93
−40	−22	−61	−60	−60

92	45	36	87	79
−20	−24	−12	−81	−26

Whole Numbers – Subtraction
Activity Sheet 15A   Name_____
Subtracting Two-Digit Numbers: Row

> Subtracting numbers side-by side is a little bit tricky. The numbers aren't
> neatly lined up in columns for you. But if you remember to work from the right
> to the left, it isn't hard. In the problem 53-21= ____, you first subtract the
> right-hand numbers (the numbers in the ones place), and write down the answer on
> the right side of your answer space, like this: 53-21= __2 (because 3-1=2).
> Then subtract the numbers in the tens place, the 5 and the 2, and write your
> answer to the left of the answer you got before, like this: 53-21= __32. This
> is your answer.

Instructions: Subtract the numbers in the problems on this page and write
down your answers to the right of the equals signs.

Examples: 73-42= 31   95-12= 83   20-10= 10

43 – 41 =   66 – 61 =   57 – 31 =   83 – 11 =

32 – 20 =   45 – 33 =   51 – 10 =   85 – 83 =

93 – 60 =   79 – 26 =   93 – 40 =   95 – 73 =

67 – 22 =   34 – 23 =   85 – 41 =   95 – 22 =

27 – 10 =   97 – 20 =   46 – 40 =   93 – 92 =

76 – 12 =   96 – 15 =   82 – 30 =   66 – 12 =

23 – 12 =   88 – 40 =   73 – 60 =   87 – 81 =

83 – 21 =   55 – 42 =   54 – 13 =   45 – 24 =

When the top number in any column is smaller than the bottom number, you need to make the top number bigger. You do this by borrowing from the first column to the left.

For instance, in the problem: 53   7 is larger than 3, so you can't subtract
                                 -37   it. But remember, the "5" in the number
                                            53 is really 5 tens. So you can borrow one
set of ten from 5, and that leaves 4 in the tens place.

     4
     5̸3   Next, add the ten you borrowed to the 3 in the ones place, and you
    -37   get 13.

     4 13
     5̸3̸   Now, 13-7=6, and 4-3 = 1. Your answer is 16.
    -37
    ————
     16

Look at this problem: 24   You can't subtract 9 from 4. So you
                            -19   borrow ten ones from the tens place and add
                                       it to the 4. Then subtract. 14-9 = 5, and
                             1 14   1-1 = 0. (Remember, you don't have to write
                             2̸4̸   down the 0 if it is the first digit in a
                            -19   number.)
                            ————
                              5

Instructions: Subtract the numbers in the problems on these pages. Borrow numbers from the next column when you need to.

              7 16   4 13
Examples: 8̸6̸   5̸3̸
             -58   -39
             ————   ————
              28   14

65	94	63	87	55
-26	-89	-48	-18	-36

58	45	53	35	25
-29	-17	-37	-26	-17

65	94	43	34	64
-56	-59	-17	-16	-37

Whole Numbers – Subtraction
Activity Sheet 16A, Continued
Borrowing: Numbers in a Column

Name_____

94 −19	86 −19	41 −29	95 −67	93 −34
95 −57	64 −26	95 −26	84 −27	83 −67
67 −49	56 −48	87 −29	61 −59	66 −48
62 −18	73 −57	57 −49	65 −48	78 −59
86 −57	91 −64	34 −17	80 −64	54 −29

Name _____

When your problem is arranged in a row, you don't have a nice handy column for the number you carried to go above. You can put that number above the proper digit in the last number of the problem like this:

$$\begin{array}{c} 4\ 16 \\ \cancel{5}\cancel{6} - 37 = \underline{\ \ 9\ \ } \end{array}$$

The 1 represents a ten, so be sure you put it with the number which is in the ones place. Then when you subtract numbers in the ones place, don't forget to subtract the 1 you carried over from the tens place!

$$\begin{array}{c} 4\ 16 \\ \cancel{5}\cancel{6} - 37 = \underline{\ \ 19\ \ } \end{array}$$

Instructions: Subtract the numbers in the problems on this page, and carry numbers back to the proper place whenever you need to.

Examples:
$$\begin{array}{c} 1\ 14 \\ \cancel{2}\cancel{4} - 19 = 5 \end{array}$$
$$\begin{array}{c} 7\ 16 \\ \cancel{8}\cancel{6} - 58 = 28 \end{array}$$
$$\begin{array}{c} 4\ 13 \\ \cancel{5}\cancel{3} - 39 = 14 \end{array}$$

56 – 37 =	25 – 17 =	64 – 37 =	93 – 38 =
83 – 67 =	66 – 49 =	78 – 59 =	54 – 29 =
84 – 68 =	65 – 48 =	51 = 49 =	84 – 27 =
95 – 68 =	35 – 16 =	36 – 27 =	87 – 18 =
63 – 48 =	53 – 37 =	43 – 17 =	41 – 29 =
95 – 28 =	87 – 29 =	64 – 47 =	34 – 17 =
68 – 39 =	73 – 57 =	56 – 48 =	64 – 26 =

Whole Numbers – Subtraction
Activity Sheet 18A
Subtracting Two Three-Digit Numbers in a Column

Name_____

In these problems you are subtracting bigger numbers. You may have to
borrow 10 from the next column. In some problems you may have to borrow twice -
once from the tens column and once from the hundreds column.

Instructions: Subtract the numbers on this page and put the answers below
the line. Borrow whenever you need to.

Examples:

```
      19                13
    3 Ø 16            6 Ø 13
    4 1 6             7 4 3           884
    -347              -159            -261
    ─────             ─────           ─────
     69                584            623
```

217	834	566	554	909
-197	-635	-391	-109	-435

854	592	270	117	345
-834	-102	-225	-101	-302

954	785	929	500	978
-506	-714	-523	-379	-569

594	813	590	920	822
-195	-804	-491	-357	-368

658	505	342	701	465
-246	-327	-122	-484	-320

994	599	206	939	268
-108	-135	-131	-760	-182

One of the simplest ways to check subtraction is to add the answer to the bottom number of the problem and see if it adds up to the top number:

$$\begin{array}{r} 7 \\ -5 \\ \hline 2 \end{array} \qquad \begin{array}{r} 7 \\ 5 \\ +2 \end{array}$$

As you can see, you subtract ↓ DOWN; but you add ↑ UP to see if your subtraction was correct. When you add up to check your subtraction and the top number is different than the original top number, you need to re-do your subtraction.

Check these subtraction problems by adding up ↑ :

$$\begin{array}{r} 7 \\ -3 \\ \hline 5 \end{array} \qquad \begin{array}{r} ? \\ 3 \\ +5 \end{array}$$

3 + 5 = 8, not 7, so the problem was wrong.

$$\begin{array}{r} 10 \\ -\ 2 \\ \hline 8 \end{array} \qquad \begin{array}{r} ? \\ 8 \\ +2 \end{array}$$

8 + 2 = 10, which is the top number, so this problem was correct.

Instructions: Check the subtraction problems on this page by adding ↑ up. If a problem is wrong, cross out the wrong answer and write the correct answer below it.

Examples:

$$\begin{array}{r} 128 \\ -\ 99 \\ \hline 29 \end{array}$$
(this answer was right – no correction needed)

$$\begin{array}{r} 1028 \\ -\ 879 \\ \hline \cancel{159} \\ 149 \end{array}$$
(this answer was wrong, so it was corrected)

$$\begin{array}{r} 65 \\ -\ 26 \\ \hline 39 \end{array} \qquad \begin{array}{r} 7 \\ -6 \\ \hline 2 \end{array} \qquad \begin{array}{r} 99 \\ -\ 84 \\ \hline 15 \end{array} \qquad \begin{array}{r} 10 \\ -\ 4 \\ \hline 7 \end{array}$$

$$\begin{array}{r} 104 \\ -\ 68 \\ \hline 46 \end{array} \qquad \begin{array}{r} 212 \\ -144 \\ \hline 68 \end{array} \qquad \begin{array}{r} 44 \\ -18 \\ \hline 26 \end{array} \qquad \begin{array}{r} 17 \\ -\ 8 \\ \hline 9 \end{array}$$

$$\begin{array}{r} 16 \\ -14 \\ \hline 3 \end{array} \qquad \begin{array}{r} 26 \\ -10 \\ \hline 16 \end{array} \qquad \begin{array}{r} 48 \\ -19 \\ \hline 39 \end{array} \qquad \begin{array}{r} 144 \\ -122 \\ \hline 22 \end{array}$$

$$\begin{array}{r} 898 \\ -146 \\ \hline 742 \end{array} \qquad \begin{array}{r} 72 \\ -38 \\ \hline 34 \end{array} \qquad \begin{array}{r} 99 \\ -66 \\ \hline 33 \end{array} \qquad \begin{array}{r} 196 \\ -\ 78 \\ \hline 118 \end{array}$$

Whole Numbers - Subtraction
Activity Sheet 19A, Continued
Checking Subtraction by Adding

1183	6139	43	7172
- 647	-4350	-16	-1691
536	1789	27	5461

13	89	723	1
- 9	-42	-418	-1
4	47	205	1

Whole Numbers – Subtraction   Name _____
Activity Sheet 20A
Practice Numbers in Rows: Subtraction

+---+
| Here are several problems arranged in rows for you to try. Sometimes |
| you will have to borrow numbers and sometimes you will not. |
+---+

        Instructions: Subtract the numbers in the problems on this page, and
put your answers to the right of the equals sign. Sometimes you will need
to borrow numbers. Write the numbers you get when you borrow above the proper
number of the problem.

                    1 13 11   7 16
Examples: $2\!\!\!/\ 4\!\!\!/\ 1\!\!\!/$ – 56 = 185   879 – 642 = 237   1 0 $8\!\!\!/$ $6\!\!\!/$ – 807 = 279

84 – 22 =   689 – 29 =   290 – 14 =

92 – 68 =   353 – 86 =   76 – 33 =

97 – 31 =   6854 – 131 =   556 – 545 =

85 – 69 =   41 – 33 =   51 – 18 =

610 – 183 =   972 – 748 =   34 – 24 =

443 – 167 =   888 – 799 =   446 – 175 =

688 – 633 =   380 – 324 =   72 – 38 =

71 – 4 =   100 – 6 =   468 – 23 =

56 – 36 =   84 – 78 =   3035 – 29 =

891 – 15 =   903 – 14 =   8734 – 586 =

> Try your new skill at subtracting all kinds of problems in columns.
> Sometimes you will have to borrow and sometimes you will not.

Instructions: Subtract the numbers in the problems on this page, and put your answers below the lines. Sometimes you will need to borrow. Write the numbers you get when you borrow above the proper columns.

```
                 1 13 11
Examples:        2 4 1            8 7 9          7 16
               -   5 6          - 6 4 2      1 0 8 8
                 ─────          ───────      -   8 0 7
                 1 8 5            2 3 7      ────────
                                              2 7 9
```

```
    76          71          888          18          97
   -33         - 4         - 95         -11         -31
```

```
   981         100          446         610        6854
   - 15        - 6         -175        -183        - 131
```

```
   903         468          688         748         556
   - 14        -166        -460        - 57        -545
```

```
   871          56          387          34          85
   - 93        - 3         - 98         -24         -69
```

```
   290          84           38         442          41
   - 51         -74         -13        -199         -33
```

```
  6885        3812          695        1009         484
  - 598       - 156         - 37       - 578        - 87
```

```
  8902         939         4033         321         313
  -2110        - 99        -1324        -123        -157
```

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Whole Numbers – Multiplication   Name _____
Activity Sheet 22A
Multiplying Two One-Digit Numbers: Columns

> The numbers from 0 to 9 are called one-digit numbers. Here are some problems in which you must multiply two one-digit numbers together. They are arranged in columns, that is, with one number over the other.

Instructions: Multiply each column of one-digit numbers and write the answer below the line.

Examples:

$$\begin{array}{cc} 1 \\ \times 4 \\ \hline 4 \end{array} \qquad \begin{array}{cc} 8 \\ \times 3 \\ \hline 24 \end{array} \qquad \begin{array}{cc} 9 \\ \times 0 \\ \hline 0 \end{array}$$

1 x 5	1 x 8	7 x 4	5 x 8	1 x 5
0 x 9	4 x 8	7 x 9	7 x 6	1 x 0
6 x 7	3 x 3	4 x 2	7 x 7	9 x 3
6 x 6	3 x 8	8 x 6	5 x 7	7 x 3
8 x 0	7 x 7	0 x 7	4 x 6	0 x 9
8 x 4	2 x 0	2 x 4	5 x 1	1 x 5
8 x 9	1 x 1	9 x 5	2 x 3	9 x 9
0 x 3	7 x 4	0 x 4	6 x 0	6 x 8

Name _____

In these problems, the one-digit numbers are arranged in rows.

Instructions: Multiply each row of one-digit numbers and write the answer to the right of the equals (=) sign.

Examples: 1 x 4 = 4   8 x 3 = 24   9 x 0 = 0

1 x 5 =   1 x 0 =   9 x 3 =   7 x 3 =

0 x 9 =   1 x 6 =   9 x 9 =   6 x 8 =

6 x 0 =   2 x 3 =   5 x 1 =   4 x 6 =

  x 7 =   7 x 7 =   7 x 6 =   5 x 8 =

7 x 4 =   7 x 9 =   4 x 2 =   8 x 6 =

0 x 7 =   2 x 4 =   9 x 5 =   0 x 4 =

7 x 4 =   1 x 1 =   2 x 0 =   7 x 7 =

3 x 8 =   3 x 3 =   4 x 8 =   1 x 8 =

3 x 4 =   2 x 5 =   6 x 7 =   6 x 6 =

8 x 0 =   8 x 4 =   8 x 9 =   0 x 3 =

Whole Numbers – Multiplication   Name _____
Activity Sheet 24A
Multiplying one Digit Times Two Digits: Column

> When you have bigger numbers to multiply, you multiply them together
> from right to left. For instance, if you want to multiply:
>
> $$\begin{array}{r} 21 \\ \times\ 3 \\ \hline \end{array}$$
>
> you must first multiply the right hand column, the 1 and the 3. This gives
> you 3 in the right-hand answer space.
>
> $$\begin{array}{r} 21 \\ \times\ 3 \\ \hline 3 \end{array}$$
>
> Then you multiply the number on the bottom right times the number in the left
> hand column. 2 x 3 = 6. This gives you:
>
> $$\begin{array}{r} 21 \\ \times\ 3 \\ \hline 63 \end{array}$$
>
> and that is the solution to the problem.

Instructions: Multiply the numbers in the problems on this page and
write you answers below the line. Remember to multiply the right-hand column
first.

Examples:

40	92	20
x 3	x 3	x 7
120	276	140

41	66	37	13	20
x 3	x 1	x 1	x 1	x 2

14	90	30	11	45
x 2	x 6	x 2	x 6	x 1

93	90	62	23	51
x 3	x 8	x 4	x 2	x 0

92	90	71	40	83
x 4	x 4	x 9	x 8	x 3

Whole Numbers - Multiplication
Activity Sheet 24A
Multiplying Two-Digit Numbers: Column   (Continued)

46	22	91	73	60
x 0	x 3	x 5	x 0	x 3

20	42	34	81	92
x 2	x 4	x 2	x 7	x 4

Whole Numbers - Multiplication   Name _____
Activity Sheet 25A
Multiplying Two-Digit Numbers: Rows

> Multiplying numbers side-by-side is a little bit tricky. The numbers
> aren't lined up in columns for you. But if you remember to work from the
> right to the left, it isn't hard. In the problem 21 x 3 = _____, you
> first multiply the right-hand numbers (the numbers in the ones place), and
> write down the answer on the right side of your answer space, like this:
> 21 x 3 = ___3_ (because 1 x 3 = 3). Then multiply your right-hand number
> times the number in the tens place, the 3 times the 2 and write your answer
> to the left of the answer you got before, like this: 21 x 3 = _63__ . This
> is your answer.

Instructions: Multiply the numbers in the problems on this page and
write down your answers to the right of the equals signs.

Examples: 40 x 3 = 120   92 x 4 = 368   20 x 0 = 0

41 x 3 =   66 x 1 =   37 x 1 =   13 x 1 =

20 x 2 =   42 x 3 =   51 x 0 =   83 x 3 =

60 x 3 =   92 x 4 =   93 x 0 =   73 x 3 =

64 x 2 =   20 x 4 =   81 x 5 =   22 x 4 =

10 x 7 =   20 x 7 =   46 x 0 =   92 x 3 =

14 x 2 =   90 x 6 =   30 x 2 =   12 x 4 =

23 x 2 =   40 x 8 =   73 x 0 =   81 x 7 =

21 x 3 =   54 x 2 =   51 x 4 =   42 x 4 =

288

When the numbers in a column you are multiplying come to more than 9, you have a two-digit answer. It won't fit into one column in the answer space. You need to "carry" the first digit over and add it onto the column to the left. For example, in the problem:

$$37 \times 6$$

7 times 6 equals 42. There is not enough space to fit the 42 under the ones column in the problem. But since 42 is the same as four tens and two ones, you can take the "4" in the tens place and add it to the top of the tens column in the problem like this:

$$\textcircled{4} \quad 37 \quad x\ 6 \quad \textcircled{4}2$$

Now you multiply the 6 times the 3, and <u>add</u> the 4 that you carried over. 6 x 3 = 18, and 18 + 4 = 22. So you put the 22 next to the answer you got in the ones place, and it looks like this:

$$\textcircled{4} \quad 37 \quad \underline{x\ 6} \quad 222$$

(6 x 7 = 42, put down the 2 and carry the 4, 6 x 3 = 18, add the 4 and it equals 22. Your answer is 222.)

Now look at how this problem is solved:

$$28 \times 3$$

$$\textcircled{2} \quad 28 \quad \underline{x\ 3} \quad 84$$

(3 x 8 = 24, put down the 4 and carry the 2, 3 x 2 = 6, add the 2 you carried and it equals 8. Your answer is 84.)

Instructions: Multiply the numbers in the problems on the following page, and carry over numbers to the next column when you need to.

Examples:

$$\textcircled{3} \quad 24 \quad \underline{x\ 9} \quad 216$$

$$\textcircled{4} \quad 86 \quad \underline{x\ 8} \quad 688$$

$$\textcircled{2} \quad 59 \quad \underline{x\ 3} \quad 177$$

(Your don't have to draw the lines to show that you carried a number up to the top of the next column; just put the number there.)

Whole Numbers - Multiplication
Activity Sheet 26A
Carrying: Numbers in a Column (Continued)

Name _____

```
  54        38        14        98        56
x  9      x  4      x  7      x  6      x  7
```

```
  72        65        44        57        62
x  9      x  8      x  4      x  3      x  8
```

```
  69        59        87        48        45
x  6      x  2      x  9      x  6      x  7
```

```
  67        87        25        66        55
x  3      x  4      x  8      x  4      x  7
```

```
  39        65        43        16        99
x  3      x  7      x  9      x  8      x  4
```

```
  34        15        13        99        66
x  7      x  5      x  7      x  4      x  5
```

```
  15        26        53        17        59
x  7      x  5      x  7      x  5      x  8
```

```
  35        87        68        84        65
x  6      x  7      x  3      x  9      x  6
```

When you are multiplying two numbers and the bottom number is only one digit long, you have plenty of space to put your answer right under the line.
For example:

$$\begin{array}{r} 32 \\ \times\ 3 \\ \hline 96 \end{array}$$ (3 x 2 = 6, and 3 x 3 = 9)

But if the bottom number is <u>more</u> than one digit long, where do you put the answer?

$$\begin{array}{r} 32 \\ \times\ 43 \\ \hline 96 \\ ? \end{array}$$ (because 3 x 2 = 6, and 3 x 3 = 9, but what
      do you do with the "4" in the bottom number?)

Remember, a two-digit number has one number in the <u>ones</u> place and one number in the <u>tens</u> place. In the number 43, the number in the ones place is 3, and the number in the tens place is 4. If you want to multiply a number by 43, it is the same as multiplying it by 3 ones and 4 tens. It is like two problems in one, so you need more than one place to put your answer.

Here's how it happens:

$$\begin{array}{r} 32 \\ \times\ 43 \\ \hline \end{array}$$ First, multiply the top number, 32, by the number on the bottom that is in the ones place. This number is 3. You have done this kind of problem before. (Forget the 4.)

Tens Ones

$$\begin{array}{r} 32 \\ \times\ 43 \\ \hline 96 \end{array}$$ ⟵ $$\begin{array}{r} 32 \\ \times\ \lfloor\ \rfloor 3 \\ \hline 96 \end{array}$$

Next, multiply the top number by the bottom number that is in the tens place. This number is 4. (Forget the 3.)

Tens Ones

$$\begin{array}{r} 32 \\ \times\ 43 \\ \hline 96 \\ 128 \end{array}$$ ⟵ $$\begin{array}{r} 32 \\ \times\ 4\lfloor\ \rfloor \\ \hline 128 \end{array}$$ Put your answer in line under <u>the 4</u>, not under the 3.

Put your "tens" answer <u>underneath</u> your "ones" answer: put the 128 under the 96. Remember to line up the tens answer under the tens place.

```
    32
  x 43
    96
  128
  1376
```

Next, all you have to do is add the two answers together. Add the columns straight down, and from the right. (6 + nothing = 6, 9 + 8 = 17, put down the 7 and carry the 1, 2 + the 1 carried equals 3, and 1 + nothing = 1.) Your answer is 1376.

That was easy. Now work through this problem, step by step:

```
    41
  x 26
```

First, multiply 41 by the bottom number in the ones place, which is 6.

$$41 \times 6 = 246$$

```
Tens Ones
    41
  x 26
   246
    82
  1066
```

Put the answer in the ones place.

Next, multiply 41 by the bottom number in the tens place, which is 2.

$$41 \times 2 = 82$$

Put the answer in the tens place.

Now just add the answers straight down, from right to left. 6 + nothing = 6, 4 + 2 = 6, 2 + 8 = 10. The answer is 1066.

Name _____

Instructions: Multiply the numbers in the problems below. Make sure
you line up the "ones" answer under the ones place, and the "tens" under
the tens place, then add them straight down.

41 x 43	66 x 61	37 x 51	13 x 81	20 x 32
14 x 72	90 x 16	30 x 82	11 x 66	45 x 31
93 x 93	90 x 18	62 x 24	23 x 12	51 x 10
92 x 84	90 x 44	71 x 29	40 x 88	83 x 83
46 x 40	22 x 43	91 x 65	73 x 62	60 x 93
20 x 92	42 x 24	34 x 12	81 x 87	92 x 74

In the last two worksheets you learned how to multiply two digit numbers, and how to carry numbers over to the next columns. For a lot of problems, you will have to do both things. Here is an example:

(1)
```
   43
 x 26
  258
   86
 1118
```

{ 6 x 3 = 18, put down the 8 and carry the 1.
6 x 4 = 24, plus the 1 you carried = 25. Your "ones" answer is 258.

{ 2 x 3 = 6, and 2 x 4 = 8. Your "tens" answer is 86.

{ 8 + nothing = 8, 5 + 6 = 11, put down the 1 and carry a 1, 2 + 8 + the 1 you carried = 11. Your final answer is 1118.

Now work through this problem, step by step:

(3)
(4)
```
   37
 x 56
  222
  185
 2072
```

{ 6 x 7 = 42, put down the 2 and carry the 4.
6 x 3 = 18, plus the 4 you carried = 22. Your "ones" answer is 222.

{ 5 x 7 = 35, put down the 5 and carry the 3. (You could erase the old "4" you carried before or cross it out.) 5 x 3 = 15, plus the 3 you just now carried = 18. Your "tens" answer is 185.

{ 2 + nothing = 2, 2 + 5 = 7, 2 + 8 = 10, put down the 0 and carry the 1, 1 + the 1 you carried = 2. Your final answer is 2072.

Instructions: Multiply the numbers in the problems on these pages. Make sure you line up the answers correctly. Remember to carry numbers over to the next column when you need to.

```
   65          84          68          87          35
 x 26        x 99        x 43        x 17        x 56
```


```
   59          17          53          26          15
 x 28        x 45        x 37        x 25        x 27
```

Whole Numbers – Multiplication
Activity Sheet 28A (Continued)
Carrying: Two Digit Numbers

65 x 55	99 x 54	13 x 47	15 x 35	34 x 67
99 x 14	16 x 89	41 x 29	65 x 97	39 x 93
55 x 97	66 x 24	25 x 98	87 x 24	67 x 83
45 x 67	48 x 56	87 x 29	59 x 51	69 x 46
62 x 18	57 x 73	49 x 44	65 x 48	78 x 59
56 x 87	98 x 96	14 x 37	88 x 64	54 x 29

In these problems you are multiplying bigger numbers. You may have to carry numbers over to the next column. Also, you need to do the problem in three steps:

(1) multiply the ones place
(2) multiply the tens place
(3) multiply the hundreds place

Work through this example step by step:

```
  ①②
  ØØ
  3 4 7
x 4 1 6
  ①①
  2 0 8 2
  3 4 7
1 3 8 8 ‾
1 4 4 3 5 2
```

{ 6 x 7 = 42, write down the 2 and carry the 4. 6 x 4 = 24 plus the 4 you carried = 28, write down 8 and carry 2. 6 x 3 = 18 plus the 2 you carried = 20. Your "ones" answer is 2082

{ 1 x 7 = 7. 1 x 4 = 4. 1 x 3 = 3. Your "tens" answer is 347.

{ 4 x 7 = 28, write down 8 and carry 2. 4 x 4 = 16, plus the 2 you carried = 18, write down 8 and carry 1. 4 x 3 = 12 plus the 1 you carried = 13. Your "hundreds" answer is 1388.

{ 2 + nothing = 2. 8 + 7 = 15, write down 5 and carry 1. 8 + 4 plus the 1 you carried = 13, put down the 3 and carry the 1. 2 + 3 + 8 plus the 1 you carried = 14, put down the 4 and carry the 1. 3 + the 1 you carried = 4. 1 + nothing = 1. Your final answer is 144352.

Instructions: Multiply the numbers on this page. Make sure you line up the answers correctly. Remember to carry numbers over to the next column when you need to.

197	834	391	554	909
x 217	x 635	x 566	x 109	x 435

854	592	225	101	345
x 834	x 102	x 270	x 117	x 302

Name _____

506 x 954	714 x 785	523 x 929	379 x 500	978 x 569
195 x 594	813 x 804	590 x 491	357 x 920	368 x 822
658 x 246	505 x 327	342 x 122	701 x 484	320 x 465
108 x 994	135 x 599	131 x 206	760 x 939	268 x 182

An easy way to learn division is to remember that it's just like multiplying backwards. You know that 2 x 3 = 6. This means there are 2 groups of 3 in the number 6. (There are also 3 groups of 2 in the number 6.)

2 groups of 3 = 6   3 groups of 2 = 6

So you know that 6 ÷ 3 = 2, and 6 ÷ 2 = 3.

There are 2 groups of 3 in 6   There are 3 groups of 2 in 6

If you know your multiplication tables (your "times tables") then you can divide.

Look at the division problem and you can find a multiplication problem inside it.

$$4\overline{)20}^{\;?}$$

When you see this problem, think: "4 times what equals 20?" You know that 4 times 5 equals 20, so that is the answer.

$$4 \times 5 = 20, \text{ so } 4\overline{)20}^{\;5}$$

30 ÷ 6 = ?

Ask yourself, "6 times what equals 30?" The answer is 6 times 5 equals 30, so that is your answer.

6 x 5 = 30, so 30 ÷ 6 = 5

Instructions: Do the problem on the next page. First, ask yourself a _multiplying_ question and write the answer down. Then put in the answer to the _division_ problem.

Example:

$$9\overline{)72}^{\;8}$$ 9 x 8 = 72   42 ÷ 6 = 7   6 x 7 = 42

Whole Numbers - Division
Activity Sheet 30A
Dividing and Multiplying are Related

Name _____

An easy way to learn division is to remember that it's just like multiplying backwards. You know that 2 x 3 = 6. This means there are 2 groups of 3 in the number 6. (There are also 3 groups of 2 in the number 6.)

2 groups of 3 = 6

3 groups of 2 = 6

So you know that 6 ÷ 3 = 2, and 6 ÷ 2 = 3.

There are 2 groups of 3 in 6

There are 3 groups of 2 in 6

If you know your multiplication tables (your "times tables") then you can divide.

Look at the division problem and you can find a multiplication problem inside it.

$$4\overline{)20}^{\;?}$$
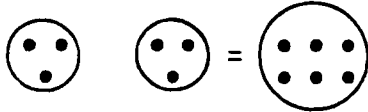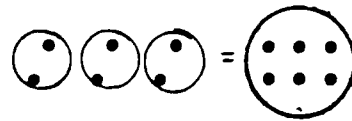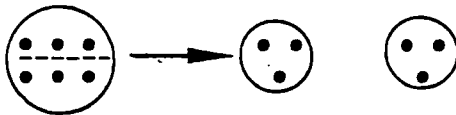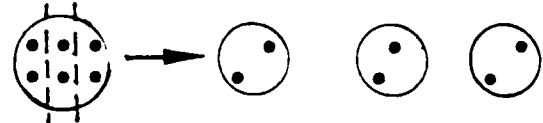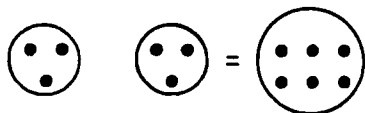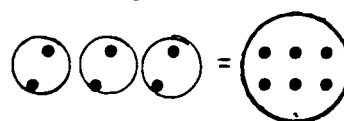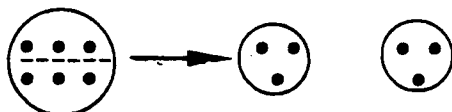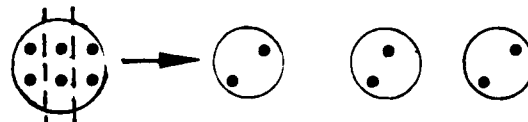
4 x 5 = 20, so $4\overline{)20}^{\;5}$

When you see this problem, think: "4 times what equals 20?" You know that 4 times 5 equals 20, so that is the answer.

30 ÷ 6 = ?

6 x 5 = 30, so 30 ÷ 6 = 5

Ask yourself, "6 times what equals 30?" The answer is 6 times 5 equals 30, so that is your answer.

Instructions: Do the problems on the next page. First, ask yourself a _multiplying_ question and write the answer down. Then put in the answer to the _division_ problem.

Example:

$$9\overline{)72}^{\;8}$$ 9 x 8 = 72   42 ÷ 6 = 7   6 x 7 = 42

$2\overline{)10}$ $2\overline{)36}$ $6\overline{)48}$

$14 \div 7 =$ $84 \div 7 =$ $16 \div 8 =$

$3\overline{)9}$ $7\overline{)35}$ $5\overline{)30}$

$56 \div 7 =$ $63 \div 9 =$ $27 \div 3 =$

$4\overline{)28}$ $78 \div 6 =$ $4\overline{)24}$

$40 \div 5 =$ $7\overline{)84}$ $35 \div 7 =$

$8\overline{)16}$ $30 \div 5 =$ $7\overline{)14}$

300

To divide a small number into a larger number, you just decide how many groups of the smaller number there are in the bigger number. For instance, in the problem 2/ 4, you just decide how many 2's there are in 4. A simple way might be to make 4 lines 1111 ; then see how many groups of 2 there are. You could do this by drawing a circle around every group of 2, like this: ⑪ ⑪ . Then count the groups. As you can see, there are 2 groups of 2 in 4; so

$2/\overline{4}^{\,2}$. In division you put the answer up on top of the line.

When you are dividing one digit into two digits, your first step is to decide whether the number you are dividing by is larger than the first digit of the number you are dividing into. If the number you are dividing by is larger than the first digit, then you divide your number into the whole larger number.

Example: 2/ 16, is 2 larger than 1? Yes. Is 2 larger than 16? No.
Now you divide 16 up by 2's.

⑪ ⑪ ⑪ ⑪ ⑪ ⑪ ⑪ ⑪
1   2   3   4   5   6   7   8

The answer is 8. There are 8 groups of 2 in the number 16.

So $2/\overline{16}^{\,8}$.

If you know your multiplication tables well, you do not need to make a bunch of lines and circle them into groups. If you know that 9 x 5 = 45, then you also know that $9/\overline{45}^{\,5}$ and $5/\overline{45}^{\,9}$ because there are 9 groups of 5, or 5 groups of 9, in the number 45.

Examples:

$2/\overline{8}^{\,4}$

⑪ ⑪ ⑪ ⑪
1   2   3   4

There are 4 groups of 2 in the number 8.

$4/\overline{16}^{\,4}$

(1111) (1111)
1   2

(1111) (1111)
3   4

There are 4 groups of 4 in the number 16.

49 ÷ 7

$7/\overline{49}$

$7/\overline{49}^{\,7}$

or $7/\overline{49}^{\,7}$

1 (1111111)   (1111111) 5
2 (1111111)   (1111111) 6
3 (1111111)   (1111111) 7
4 (1111111)

There are 7 groups of 7 in the number 49.

Whole Numbers – Division
Activity Sheet 31A (Continued)
Dividing One Digit Into One or Two

Name_____

Instructions: Divide the smaller number into the larger number in the problems below. Remember that there are two "symbols" for dividing. $5/\overline{10}$ and 10 ÷ 5, both mean the same thing: divide 5 into 10. Put the answer to the right of the equals (=) sign, or above the line.

1 ÷ 1 =   2 ÷ 2 =   4 ÷ 2 =   10 ÷ 5 =

9 ÷ 3 =   8 ÷ 2 =   4 ÷ 4 =   12 ÷ 2 =

10 ÷ 2 =   6 ÷ 3 =   6 ÷ 2 =   9 ÷ 9 =

$3/\overline{9}$ $2/\overline{4}$ $5/\overline{10}$ $2/\overline{4}$

$4/\overline{4}$ $5/\overline{5}$ $2/\overline{8}$ $2/\overline{6}$

$2/\overline{16}$ $3/\overline{15}$ $4/\overline{16}$ $3/\overline{12}$

$5/\overline{15}$ $3/\overline{18}$ $6/\overline{24}$ $8/\overline{24}$

$3/\overline{27}$ $4/\overline{28}$ $7/\overline{14}$ $9/\overline{36}$

There are two kinds of division problems. They are: $75 \div 3 =$ and $3\overline{)75}$

It is easier to do this kind of division problem $3\overline{)75}$ because you have a place to do your work. You can do <u>long division</u>.

$$\begin{array}{r} 25 \\ 3\overline{)75} \\ 6 \\ \hline 15 \\ 15 \\ \hline 0 \end{array}$$

When you see a problem written like this $75 \div 3 =$, you can change it into the other kind of division problem $3\overline{)75}$ very easily.

$75 \div 3 =$ means "75 divided <u>by</u> 3 equals ..."

$3\overline{)75}$ means "3 divided <u>into</u> 75 equals ..."

So you can see that they are just two ways of saying the same thing.

To change the problem, do this:

$75 \div 3 =$ $\overline{)}$

1. Write a long division sign.

$75 \div 3 =$ $\overline{)75}$

2. Put the bigger number (the number you want to divide <u>into</u>) under the sign.

$75 \div 3 =$ $3\overline{)75}$

3. Take the <u>smaller</u> number (the number you want to divide <u>by</u>) and put it in front of the long division sign.

$$\begin{array}{r} 3\overline{)75} \\ 6 \\ \hline 15 \\ 15 \\ \hline 0 \end{array}$$

Now you can solve your problem by long division.

Instructions: Change the problems below so that they are long division problems. Decide which answer (A, B, C, or D) is the correct way to write the problem. Then blacken in that square on the Answer Sheet.

Example: $14 \div 4 =$ [A] [▨] [C] [D]

A) $\overline{)414}$

B) $4\overline{)14}$

C)   56

D) $14\overline{)4}$

Whole Number - Division
Activity Sheet 32A (Continued)
Converting from ÷ to /‾‾‾

Name _____

1. 43 ÷ 4 =

A. /‾434‾
B. 43.4
C. 4/‾43‾
D. 43/‾4‾

2. 66 ÷ 7 =

A. 7/‾66‾
B. 7.66
C. 7 ÷ 66
D. 6/‾67‾

3. 4 ÷ 2 =

A. 2/‾4‾
B. 4/‾2‾
C. 2 ÷ 4
D. 2.4

4. 7 ÷ 3 =

A. 7.3
B. /‾73‾
C. 37/‾‾
D. 3/‾7‾

5. 83 ÷ 11 =

A. 83/‾11‾
B. 1183/‾‾
C. 11/‾83‾
D. 94

6. 32 ÷ 2 =

A. 34
B. 2/‾34‾
C. 32/‾2‾
D. 2/‾32‾

7. 7 ÷ 1 =

A. 1.7
B. 1/‾7‾
C. 8
D. 7.1

8. 96 ÷ 10 =

A. 10/‾96‾
B. 9.6/‾10‾
C. 960
D. /‾9610‾

9. 82 ÷ 3 =

A. 3/‾82‾
B. /‾823‾
C. 82/‾3‾
D. 8/‾23‾

10. 79 ÷ 26 =

A. 2679/‾‾
B. 6/‾279‾
C. 79/‾62‾
D. 26/‾79‾

11. 95 ÷ 6 =

A. 95/‾6‾
B. 6/‾95‾
C. 95.6/‾‾
D. 9/‾56‾

12. 23 ÷ 3 =

A. 233/‾‾
B. 23/‾3‾
C. 2/‾33‾
D. 3/‾23‾

13. 90 ÷ 40 =

A. 9/‾40‾
B. 4/‾90‾
C. 40/‾90‾
D. 90/‾40‾

14. 78 ÷ 35 =

A. 78/‾35‾
B. 7/‾835‾
C. 78.35
D. 35/‾78‾

15. 4 ÷ 3 =

A. 3/‾4‾
B. 4.3
C. 7
D. 12

16. 15 ÷ 5 =

A. 20
B. 5/‾15‾
C. 15/‾5‾
D. 1/‾55‾

17. 20 ÷ 4 =

A. /‾204‾
B. 20/‾4‾
C. 4/‾20‾
D. 80

18. 100 ÷ 10 =

A. 1000
B. 100/‾10‾
C. 10/‾100‾
D. /‾1000‾

19. 50 ÷ 16 =

A. /‾5016‾
B. 50/‾16‾
C. 800
D. 16/‾50‾

20. 25 ÷ 5 =

A. 5/‾25‾
B. /‾525‾
C. 125
D. 25/‾5‾

Name _____

ANSWER SHEET

1. A □ B □ C □ D □   11. A □ B □ C □ D □

2. A □ B □ C □ D □   12. A □ B □ C □ D □

3. A □ B □ C □ D □   13. A □ B □ C □ D □

4. A □ B □ C □ D □   14. A □ B □ C □ D □

5. A □ B □ C □ D □   15. A □ B □ C □ D □

6. A □ B □ C □ D □   16. A □ B □ C □ D □

7. A □ B □ C □ D □   17. A □ B □ C □ D □

8. A □ B □ C □ D □   18. A □ B □ C □ D □

9. A □ B □ C □ D □   19. A □ B □ C □ D □

10. A □ B □ C □ D □   20. A □ B □ C □ D □

When you divide a one digit number into a two digit number, you might find that the first digit of the number you are dividing into is bigger than the number you are dividing by. For instance, in the problem

$$4\overline{)72}\ ,\ \text{the 7 is } \underline{\text{bigger}} \text{ than the 4.}$$

You need to do this kind of division problem in two steps.

First, divide the 4 into the 7.

$$\frac{1}{4\overline{)72}}$$

4 only goes into 7 one time, and you have some left over. 1x4=4, so you put the 4 under the 7 and subtract it. Your remainder is 3. This is the first half of the problem.

$$\begin{array}{r} 1 \\ 4\overline{)72} \\ 4 \\ \hline 3 \end{array}$$

$$\begin{array}{r} 1 \\ 4\overline{)72} \\ 4 \\ \hline 32 \end{array}$$

Now, you bring the next number in the problem down to stand beside the remainder you got from dividing 4 into 7. The number you get on the bottom is 32.

$$\begin{array}{r} 18 \\ 4\overline{)72} \\ 4 \\ \hline 32 \end{array}$$

Now divide 4 into 32. Your answer is 8. You put this answer up next to the other answer above the line.

$$\begin{array}{r} 18 \\ 4\overline{)72} \\ 4 \\ \hline 32 \\ 32 \\ \hline 0 \end{array}$$

Do you have a remainder from this second division? To check, multiply 8 x 4 and you get 32. Put this below the 32 that you divided into. 32 - 32 = 0. So you have no remainder. Your problem is finished and $4\overline{)72}^{\,18}$.

Work through this example to practice this kind of division, which is called **long division**:

$$5\overline{)60}$$

First, divide 5 into the first digit, the 6. It goes one time.

$$\frac{1}{5\overline{)60}}$$

Name_____

```
     1
5/ 60
    5
    1
```
Second, multiply 1 x 5. It equals 5. Subtract this from 6 and your remainder is 1.

```
     1
5/ 60
    5
   10
```
Bring down the next digit, the 0.

Divide 5 into the new number, which is 10, and put the answer up above.

```
    12
5/ 60
   5
  10
```
Check for a remainder. Multiply 2 x 5; your answer is 10. Put this at the bottom.

```
    12
5/ 60
   5
  10
  10
```
10 - 10 = 0, so there is no remainder.

```
    12
5/ 60
   5
  10
  10
   0
```

Instructions: Work the problems on this page. You will see two kinds of problems. One kind looks like this:

2/ 88

The other looks like this: 88 ÷ 2 =

Whenever you see the second kind of problem, change it to the first kind, like this:

88 ÷ 2 = ⟶ 2/ 88   25 ÷ 5 = ⟶ 5/ 25

Then go ahead and solve the problem using the long division method.

3/66   9/ 90   6/30   3/ 12   1/ 33

4/ 16   2/ 10   3/ 36   8/ 80   6/ 24

Whole Numbers - Division
Activity Sheet 33A (Continued)
Dividing One Digit Into Two Digits

Name_____

40 ÷ 8	88 ÷ 4	64 ÷ 8	70 ÷ 5	45 ÷ 9

9/ 81	8/ 72	6/ 36	6/ 66	7/ 56

7/ 42	5/ 65	4/ 64	3/54	6/ 72

33 ÷ 3	45 ÷ 5	18 ÷ 3	15 ÷ 3	96 ÷ 8

Whole Numbers - Division
Activity Sheet 34A
Dividing One Digit Into Two With
A Remainder   Name_____

When you divide one number into another, and you have something extra left over, that something extra is called the remainder.

$$2/\overline{5}$$
$$\frac{4}{1}$$

This remainder can be written two ways:

$$2\ r=1$$ $$2/\overline{5}$$ $$\frac{4}{1}$$ or $$2\frac{1}{2}$$ $$2/\overline{5}$$ $$\frac{4}{1}$$

In method ① you just write "r=", then take the remainder and put it after the (=) sign like this:

$$2\ r=1$$
$$2/\overline{5}$$
$$\frac{4}{1}$$

In method ② you take the remainder and set it over the number you're dividing with, in this case 2. The whole problem will look like this when finished.

$$2\frac{1}{2}$$
$$2/\overline{5}$$
$$\frac{4}{1}$$

Instructions: Divide the single digit numbers into the two digit numbers in each problem; then put the remainder into the form indicated.

Examples:

$$3/\overline{10}\ r=$$ $$7/\overline{87}\ -$$ $$9/\overline{78}\ -$$

↓   ↓   ↓

$$3\ r=1$$ $$12\frac{3}{7}$$ $$08\frac{6}{9}$$
$$3/\overline{10}$$ $$7/\overline{87}$$ $$9/\overline{78}$$
$$\frac{9}{1}$$ $$\frac{7}{17}$$ $$\frac{0}{78}$$
                         $$\frac{14}{3}$$ $$\frac{72}{6}$$

$$8/\overline{65}\ r=$$ $$6/\overline{84}\ r=$$ $$7/\overline{33}\ r=$$ $$3/\overline{89}\ r=$$ $$5/\overline{99}\ r=$$

$$9/\overline{78}\ -$$ $$5/\overline{46}\ -$$ $$5/\overline{19}\ -$$ $$2/\overline{53}\ -$$ $$1/\overline{28}\ -$$

While Numbers - Division
Activity Sheet 34A (Continued)
Dividing One Digit Into Two With
A Remainder   Name_____

$6\overline{)37}$ $3\overline{)47}$ $4\overline{)94}$ $7\overline{)58}$ $8\overline{)17}$

$9\overline{)83}$ r= $4\overline{)27}$ r= $7\overline{)69}$ r= $6\overline{)76}$ r= $5\overline{)73}$ r=

$2\overline{)63}$ $7\overline{)24}$ $3\overline{)97}$ $5\overline{)86}$ $8\overline{)31}$

Whole Numbers - Division
Activity Sheet 35A
Dividing Two Digits into Three Digits

Name _____

On these pages you will be dividing two digit numbers into three digit numbers. This is the same as dividing a one digit number into a two digit number. You will divide from left to right, carry, and write remainders.

Instructions: Divide the numbers into each other and put the answers in the right places. Remember! Whenever you a see problem with a (÷) in it, you can write the problem over again using a (/‾‾‾) sign so it is easier to work.

Examples:

$217 \div 19 =$

$19\overline{)217}$

$366 \div 59 =$

$59\overline{)366}$

$109 \div 55 =$ $435 \div 90 =$ $834 \div 85 =$ $102 \div 59 =$

$22\overline{)270}$ $10\overline{)117}$ $34\overline{)302}$ $50\overline{)954}$

$785 \div 71 =$ $929 \div 52 =$ $500 \div 37 =$ $569 \div 97 =$

$19\overline{)594}$ $81\overline{)804}$ $59\overline{)591}$ $35\overline{)920}$

$35\overline{)822}$ $65\overline{)246}$ $32\overline{)507}$ $12\overline{)342}$

311

In this lesson you will divide three digit numbers into four digit numbers. You do this the same way that you divide a two digit number into a three digit number. You divide from from left to right, carry, and write remainders.

Instructions: Divide these numbers into each other and put the answers in the correct places. Do not forget to change the (÷) problems to (/‾‾‾‾) problems.

Examples:

$$3471 \div 416$$

$$416\overline{/3471}$$

$$\begin{array}{r} 8 \\ 416\overline{/3471} \\ 3328 \\ \hline 143 \end{array}$$

$$\begin{array}{r} 8 \\ 444\overline{/8888} \\ 888 \\ \hline 0008 \\ 0000 \\ \hline 8 \end{array}$$

$$9545 \div 175 =$$

$$175\overline{/9545}$$

$$\begin{array}{r} 54 \\ 175\overline{/9545} \\ 875 \\ \hline 795 \\ 700 \\ \hline 95 \end{array}$$

$4371 \div 509 =$	$3035 \div 156 =$	$8768 \div 246 =$	$8513 \div 313 =$
$484\overline{/1009}$	$271\overline{/2110}$	$100\overline{/4686}$	$101\overline{/1303}$
$4318 \div 491$	$994 \div 801$	$5995 \div 135$	$2061 \div 133$
$714\overline{/7854}$	$379\overline{/5009}$	$978\overline{/999}$	$333\overline{/6666}$
$368\overline{/8228}$	$225\overline{/2706}$	$109\overline{/1022}$	$390\overline{/4910}$

Whole Numbers - Addition
Activity Sheet 1A   Name_____
Introduction to Numbers: Problems

Instructions: Read each problem below and choose the right answer from
the choices given. Write the letter of the right answer on the line to the
right of the problem. If you get stuck on one problem, go on to the next one
and then come back to the tough ones later.

Example: The number four is written:
          (a) 5   (c) 7   (e) 8   __d__
          (b) 1   (d) 4

                                                        Write the
                                                        letter of
                                                        the right
                                                        answer

1. The number fifteen is written:
          (a) 55   (c) 51   (e) 105   1.   b
          (b) 15   (d) 510

2. In the number 8497, the "7" is in the:
          (a) ones place   (c) hundreds place   2.   a
          (b) tens place   (d) thousands place

3. The name of the number "94" is:
          (a) nine   (c) nine hundred and four   3.   d
          (b) forty-nine   (d) ninety-four

4. Which of these numbers has "1" in the hundreds' place?
          (a) 6291   (c) 4132   4.   c
          (b) 1875   (d) 2817

5. Which of these numbers is the largest?
          (a) 843   (c) 657   (e) 882   5.   e
          (b) 799   (d) 518

6. In the number 6,492,835 which digit is in the thousands place?
          (a) 4   (c) 2   (e) 6   6.   c
          (b) 9   (d) 8

7. The number seven is written:
          (a) 5   (c) 2   (e) 7   7.   e
          (b) 1   (d) 9

8. Which of these numbers is smallest?
          (a) 311   (c) 400   (e) 109   8.   e
          (b) 197   (d) 532

9. Which of these is not the name of a number?
          (a) seven   (c) tree   9.   c
          (b) sixty-two   (d) forty-five

10. The number forty-two thousand, six hundred and seventy one is written: a
          (a) 42,671   (c) 4,206,071   10. _____
          (b) 402,671   (d) 42,000,671

Whole Numbers – Addition
Activity Sheet 2A   Name_____
Adding Two One-Digit Numbers: Columns

The numbers from 0 to 9 are called one-digit numbers. Here are some problems in which you must add two one-digit numbers together. They are arranged in columns, that is, with one number over the other.

Instructions: Add each column of one-digit numbers and write the sum below the line.

Examples:

```
   1        8        9
  +4       +3       +0
  ---      ---      ---
   5       11        9
```

```
   3        1        7        5        1
  +4       +8       +4       +8       +5
  ---      ---      ---      ---      ---
   7        9       11       13        6
```

```
   2        4        7        7        1
  +5       +8       +9       +6       +0
  ---      ---      ---      ---      ---
   7       12       16       13        1
```

```
   6        3        4        7        9
  +7       +3       +2       +7       +3
  ---      ---      ---      ---      ---
  13        6        6       14       12
```

```
   6        3        8        5        7
  +6       +8       +6       +7       +3
  ---      ---      ---      ---      ---
  12       11       14       12       10
```

```
   8        7        0        4        0
  +0       +7       +7       +6       +9
  ---      ---      ---      ---      ---
   8       14        7       10        9
```

```
   8        2        2        5        1
  +4       +0       +4       +1       +5
  ---      ---      ---      ---      ---
  12        2        6        6        6
```

```
   8        1        9        2        9
  +9       +1       +5       +3       +9
  ---      ---      ---      ---      ---
  17        2       14        5       18
```

```
   0        7        0        6        6
  +3       +4       +4  314   +0       +8
  ---      ---      ---      ---      ---
   3       11        4        6       14
```

Whole Numbers - Addition
Activity Sheet 3A   Name_____
Adding Two One-Digit Numbers: Rows

In these problems, the one-digit numbers are arranged in rows.

Instructions: Add each row of one-digit numbers and write the sum to the right of the equals (=) sign.

Examples: 1+4=5   8+3=11   9+0=9

1 + 5 = 6	1 + 0 = 1	9 + 3 = 12	7 + 3 = 10
0 + 9 = 9	1 + 6 = 7	9 + 9 = 18	6 + 8 = 14
6 + 0 = 6	2 + 3 = 5	5 + 1 = 6	4 + 6 = 10
5 + 7 = 12	7 + 7 = 14	7 + 6 = 13	5 + 8 = 13
7 + 4 = 11	7 + 9 = 16	4 + 2 = 6	8 + 6 = 14
0 + 7 = 7	2 + 4 = 6	9 + 5 = 14	0 + 4 = 4
7 + 4 = 11	1 + 1 = 2	2 + 0 = 2	7 + 7 = 14
3 + 8 = 11	3 + 3 = 6	4 + 8 = 12	1 + 8 = 9
3 + 4 = 7	2 + 5 = 7	6 + 7 = 13	6 + 6 = 12
8 + 0 = 8	8 + 4 = 12	8 + 9 = 17	0 + 3 = 3

315

Whole Numbers - Addition
Activity Sheet 4A   Name_____
Adding Two-Digit Numbers: Column

   When you have bigger numbers to add, you add them together from right to
left. For instance, if you want to add

$$\begin{array}{r} 21 \\ +53 \\ \hline \end{array}$$

you must first add the right hand
column, the 1 and the 3. This gives you 4 in the right-hand answer space.

$$\begin{array}{r} 21 \\ +53 \\ \hline 4 \end{array}$$

Then you add the numbers in the left-hand column. 2 + 5= 7. This gives you

$$\begin{array}{r} 21 \\ +53 \\ \hline 74 \end{array}$$ and that is the solution to the problem.

   Instructions: Add the numbers in the problems on this page and write your
answers below the line. Remember to add the right-hand column first.

Examples:

$$\begin{array}{r} 40 \\ +43 \\ \hline 83 \end{array} \qquad \begin{array}{r} 92 \\ +15 \\ \hline 107 \end{array} \qquad \begin{array}{r} 20 \\ +10 \\ \hline 30 \end{array}$$

$\begin{array}{r} 41 \\ +43 \\ \hline 84 \end{array}$	$\begin{array}{r} 66 \\ +61 \\ \hline 127 \end{array}$	$\begin{array}{r} 37 \\ +51 \\ \hline 88 \end{array}$	$\begin{array}{r} 13 \\ +81 \\ \hline 94 \end{array}$	$\begin{array}{r} 20 \\ +32 \\ \hline 52 \end{array}$
$\begin{array}{r} 16 \\ +72 \\ \hline 88 \end{array}$	$\begin{array}{r} 90 \\ +16 \\ \hline 106 \end{array}$	$\begin{array}{r} 30 \\ +82 \\ \hline 112 \end{array}$	$\begin{array}{r} 12 \\ +66 \\ \hline 78 \end{array}$	$\begin{array}{r} 45 \\ +33 \\ \hline 78 \end{array}$
$\begin{array}{r} 94 \\ +93 \\ \hline 187 \end{array}$	$\begin{array}{r} 90 \\ +18 \\ \hline 108 \end{array}$	$\begin{array}{r} 62 \\ +24 \\ \hline 86 \end{array}$	$\begin{array}{r} 23 \\ +12 \\ \hline 35 \end{array}$	$\begin{array}{r} 51 \\ +10 \\ \hline 61 \end{array}$
$\begin{array}{r} 92 \\ +84 \\ \hline 176 \end{array}$	$\begin{array}{r} 90 \\ +40 \\ \hline 130 \end{array}$	$\begin{array}{r} 17 \\ +90 \\ \hline 107 \end{array}$	$\begin{array}{r} 40 \\ +88 \\ \hline 128 \end{array}$	$\begin{array}{r} 85 \\ +83 \\ \hline 168 \end{array}$
$\begin{array}{r} 46 \\ +40 \\ \hline 86 \end{array}$	$\begin{array}{r} 22 \\ +43 \\ \hline 65 \end{array}$	$\begin{array}{r} 91 \\ +65 \\ \hline 156 \end{array}$	$\begin{array}{r} 73 \\ +60 \\ \hline 133 \end{array}$	$\begin{array}{r} 60 \\ +93 \\ \hline 153 \end{array}$
$\begin{array}{r} 20 \\ +92 \\ \hline 112 \end{array}$	$\begin{array}{r} 45 \\ +24 \\ \hline 69 \end{array}$	$\begin{array}{r} 36 \\ +12 \\ \hline 48 \end{array}$	$\begin{array}{r} 81 \\ +87 \\ \hline 168 \end{array}$	$\begin{array}{r} 29 \\ +70 \\ \hline 99 \end{array}$

Whole Numbers - Addition
Activity Sheet 5A   Name_____
Adding Two-Digit Numbers: Row

Adding numbers side-by-side is a little bit tricky. The numbers aren't neatly lined up in columns for you. But if you remember to work from the right to the left, it isn't hard. In the problem 21+53= ____, you first add the right-hand numbers (the numbers in the ones place), and write down the answer on the right side of your answer space, like this: 21+53= ___4 (because 1+3=4). Then add the numbers in the tens place, the 2 and the 5, and write your answer to the left of the answer you got before, like this: 21+53= __74. This is your answer.

Instructions: Add the numbers in the problems on this page and write down your answers to the right of the equals signs.

Examples: 40+43= 83   92+15= 107   20+10= 30

41 + 43 = 84   66 + 61 =127   37 + 51 = 88   13 + 81 = 94

20 + 32 = 52   45 + 33 = 78   51 + 10 = 61   85 + 83 = 168

60 + 93 =153   29 + 70 = 99   93 + 40 =133   73 + 95 = 168

67 + 22 = 89   20 + 34 = 54   81 + 45 =126   22 + 95 = 117

10 + 27 = 37   20 + 97 =117   46 + 40 = 86   92 + 93 = 185

16 + 72 = 88   90 + 16 =106   30 + 82 =112   12 + 66 = 78

23 + 12 = 35   40 + 88 =128   73 + 60 = 133   81 + 87 = 168

21 + 83 =104   55 + 42 = 97   51 + 14 = 65   45 + 24 = 69

Whole Numbers – Addition
Activity Sheet 6A   Name_____
Carrying: Numbers in a Column

When the numbers in a column you are adding add up to more than 9, you have
a two-digit answer. It won't fit into one column in the answer space. You need
to "carry" the first digit over and add it onto the next column to the left.
For example, in the problem

```
 37
+56
```

7 plus 6 equals 13. There is not enough space
to fit the 13 under the ones column in the
problem.

But since 13 is the same as a ten and three ones, you can take the "1" in the tens
place and add it to the top of the tens column in the problem, like this:

```
 ①
 37
+56
  3
```

Now you can go ahead and add the tens column up
and finish the problem. The finished problem
will look like this:

```
 ①
 37
+56
 93
```

Instructions: Add the numbers in the problems on these pages, and carry over
numbers to the next column when you need to.

Examples:

```
 ①        ①        ①
 24       86       59
+19      +58      +33
 43      144       92
```

(You don't have to draw the lines to show that you carried a number up to the
top of the next column; just put the number up there.)

65	84	68	87	35
+26	+99	+43	+17	+56
91	183	111	104	91
59	17	53	26	15
+28	+45	+37	+25	+27
87	62	90	51	42
66	99	13	15	34
+55	+54	+47	+35	+67
121	153	60	50	101
99	16	41	65	39
+14	+89	+29	+97	+93
113	105	70	162	132

Whole Numbers - Addition
Activity Sheet 6A, Continued   Name_____
Carrying: Numbers in a Column

55	66	25	87	67
+97	+24	+98	+24	+83
152	90	.-123	111	150

45	48	87	59	69
+67	+56	+29	+51	+46
112	104	116	110	115

62	57	49	65	78
+18	+73	+44	+48	+59
80	130	93	113	137

56	98	14	88	54
+87	+96	+37	+64	+29
143	194	51	152	83

Whole Numbers - Addition
Activity Sheet 7A
Carrying: Numbers in a Row

Name_____

When your problem is arranged in a row, you don't have a nice handy column for the number you carried to go above. You can put that number above the proper digit in the first number of the problem, like this:

$$\overset{1}{37} + 56 = \underline{\quad 3\quad}$$

The 1 represents a ten, so be sure you put it above a number which is in a tens place. Then when you add the numbers in the tens places, don't forget to add the number you carried over!

$$\overset{1}{37} + 56 = \underline{\quad 93\quad}$$ because 7 + 6 = 13 and you carried the 1, then 1 + 3 + 5 = 9.

Instructions: Add the numbers in the problems on this page, and carry numbers back to the proper place whenever you need to.

Examples: $\overset{1}{24} + 19 = 43$ $\overset{1}{86} + 58 = 144$ $\overset{1}{59} + 33 = 92$

35 + 56 = 91   15 + 27 = 42   34 + 67 = 101   39 + 93 = 132

67 + 83 = 150   69 + 46 = 115   78 + 59 = 137   54 + 29 = 83

88 + 64 = 152   65 + 48 = 113   59 + 51 = 110   87 + 24 = 111

65 + 97 = 162   15 + 35 = 50   26 + 25 = 51   87 + 17 = 104

68 + 43 = 111   53 + 37 = 90   13 + 47 = 60   41 + 29 = 70

25 + 98 = 123   87 + 29 = 116   49 + 44 = 93   14 + 37 = 51

98 + 96 = 194   57 + 73 = 130   48 + 56 = 104   66 + 24 = 90

Whole Numbers - Addition
Activity Sheet 8A   Name_____
Adding Two Three-Digit Numbers in a Column

In these problems you are adding bigger numbers. You may have to carry over numbers to the next column. In some problems you may have to carry over numbers twice - once to the tens column and once to the hundreds column.

Instructions: Add the numbers on this page and put the answers below the line. Carry over numbers whenever you need to.

Examples:

```
   347        159        261
  +416       +743       +884
   763        902       1145
```

(You don't have to draw the lines to show you carried the numbers.)

```
   197        834        391        554        909
  +217       +635       +566       +109       +435
   414       1469        957        663       1344


   854        592        225        101        345
  +834       +102       +270       +117       +302
  1688        694        495        218        647


   506        714        523        379        978
  +954       +785       +929       +500       +569
  1460       1499       1452        879       1547


   195        813        590        357        368
  +594       +804       +491       +920       +822
   789       1617       1081       1277       1190


   658        505        342        701        320
  +246       +327       +122       +484       +465
   904        832        464       1185        785


   108        135        131        760        268
  +994       +599       +206       +939       +182
  1102        734        337       1699        450
```

Whole Numbers- Addition
Activity Sheet 9A   Name_____
Adding Two Three-Digit Numbers in a Row

    Here are some problems where you may have to carry over numbers from one part of the answer back to the beginning of the problem. Solve them like you did using two-digit numbers, except that you may have to carry twice.

    Instructions: Add the numbers in the problems on this page, and carry numbers back to the proper place when you need to.

Examples:
      1   -- 11   1
347 + 416 = 763   159 + 743 = 902   261 + 884 = 1145

368 + 822 = 1190   197 + 217 = 414   322 + 665 = 987   658 + 246 = 904

357 + 920 = 1277   834 + 635 = 1469   303 + 140 = 443   505 + 327 = 832

590 + 491 = 1081   391 + 566 = 957   216 + 153 = 369   342 + 122 = 464

813 + 804 = 1617   554 + 109 = 663   290 + 619 = 909   701 + 484 = 1185

195 + 594 = 789   909 + 435 = 1344   494 + 928 = 1422   320 + 465 = 785

978 + 569 = 1547   854 + 834 = 1688   310 + 842 = 1152   108 + 994 = 1102

379 + 500 = 879   592 + 102 = 694   251 + 404 = 655   135 + 599 = 734

523 + 929 = 1452   225 + 270 = 495   646 + 978 = 1624   131 + 206 = 337

Whole Numbers - Addition
Activity Sheet 10A

Name_____

Practice Numbers in Columns: Addition

Try your skill now at adding all kinds of problems in columns. Sometimes you will have to carry numbers, and sometimes you will not.

Instructions: Add the numbers in the problems on this page, and put your answers below the lines. Sometimes you will need to carry numbers. Write the numbers you carry above the proper columns.

Examples:

```
  241          642         1086
  +56         +879         +105
  + 2         ────         +807
  ───         1521         ────
  299                      1998
```

(You don't have to draw the lines to show you carried a number.)

```
     3         71        795         51          2
    76          4        888         18         97
   +33        + 5        + 9        +11        +31
   ───        ───        ───        ───        ───
   112         80       1692         80        130


   981        100        175        610       6854
   + 15       + 6       +446        + 3       + 131
   ───        ───        ───        ───        ────
   996        106        621        613       6985


   130        468        633        972        556
   903        166        688        748        545
   + 14       + 23      +460        + 57      +920
  ────        ───       ────       ────       ────
  1047        657       1781       1777       2021


     3         56        324         34         11
    60          3        380         24         69
   +87        + 6        + 8        + 0        +85
   ───        ───        ───        ───        ───
   150         65        712         58        165


   780         11         38        167          1
   290         84         13        199         30
    51         78          5          6          2
  +565        + 8        +72       +442        +41
  ────        ───        ───        ───        ───
  1686        181        128        814         74


  4371        156        445       1009        181
  6885       3035         34        578        484
   509         29         15          1         87
  + 86       +3812       +695       +809       +126
 ─────       ────       ────       ────       ────
 11851       7032       1189       2397        878


   271        531       4033        935         63
  8902        938         84        246        313
  2110       6285       8768         54       8513
  + 16       + 3        + 105      +9469       + 157
 ─────       ────       ─────      ─────       ────
 11299       7757      12990      10704       9046
```

Here are several problems arranged in rows for you to try. Sometimes you
will have to carry numbers and sometimes you will not.

Instructions: Add the numbers in the problems on this page, and put your
answers to the right of the equals sign. Sometimes you will need to carry numbers.
Write the numbers you carry above the proper place in the first number of the
problem.

Examples:
$$241+56+2= 299 \qquad \overset{11}{642}+879= 1521 \qquad \overset{1}{1086}+105+807= 1998$$

84 + 22 = 106   689 + 29 = 718   14 + 290 = 304

68 + 92 = 160   353 + 86 = 439   3 + 76 + 33 = 112

2 + 97 + 31 = 130   6854 + 131 = 6985   556 + 545 + 920 = 2021

11 + 69 + 85 = 165   1 + 30 + 2 + 41 = 74   51 + 18 + 11 = 80

610 + 3 = 613   972 + 748 + 57 = 1777   34 + 24 + 0 = 58

167 + 199 + 6 + 443 = 815 795 + 888 + 9 = 1692   175 + 446 = 621

633 + 688 + 460 = 1781   324 + 380 + 8 = 712   38 + 13 + 5 + 72 = 128

71 + 4 + 5 = 80   100 + 6 = 106   468 + 166 + 23 = 657

56 + 3 + 6 = 65   11 + 84 + 78 + 8 = 181   156 + 3035 + 29 = 3220

891 + 15 = 906   130 + 903 + 14 = 1047   3 + 60 + 87 = 150

CHECK SHEET
Whole Numbers - Subtraction
Activity Sheet 12A
Subtracting Two One-Digit Numbers: Columns

Name _____

The numbers from 0 to 9 are called one-digit numbers. Here are some problems in which you must subtract two one-digit numbers from each other. They are arranged in columns, that is, with one number over the other.

Instructions: Subtract each column of one-digit numbers from each other and write the difference below the line.

Examples:

```
  4        8        9
 -1       -3       -0
 ---      ---      ---
  3        5        9
```

```
  4        8        7        8        5
 -3       -1       -4       -5       -1
 ---      ---      ---      ---      ---
  1        7        3        3        4
```

```
  5        8        9        7        1
 -2       -4       -7       -6       -0
 ---      ---      ---      ---      ---
  3        4        2        1        1
```

```
  7        3        4        7        9
 -6       -3       -2       -7       -3
 ---      ---      ---      ---      ---
  1        0        2        0        6
```

```
  6        8        8        7        7
 -6       -3       -6       -5       -3
 ---      ---      ---      ---      ---
  0        5        2        2        4
```

```
  8        7        7        6        9
 -0       -7       -0       -4       -0
 ---      ---      ---      ---      ---
  8        0        7        2        9
```

```
  8        2        4        5        5
 -4       -0       -2       -1       -4
 ---      ---      ---      ---      ---
  4        2        2        4        1
```

```
  9        1        9        3        9
 -8       -1       -5       -2       -9
 ---      ---      ---      ---      ---
  1        0        4        1        0
```

```
  3        7        4        6        8
 -0       -4       -0       -0       -6
 ---      ---      ---      ---      ---
  3        3        4        6        2
```

Whole numbers - Subtraction
Activity Sheet 13A   Name_____
Subtracting Two One-Digit Numbers: Rows

In these problems, the one-digit numbers are arranged in rows.

Instructions: Subtract the second number from the first number and write the difference to the right of the equals (=) sign.

Examples: 4-1=3   8-3=5   9-0 9

5 - 1 = 4   1 - 0 = 1   9 - 3 = 6   7 - 3 = 4

9 - 0 = 9   6 - 1 = 5   9 - 9 = 0   8 - 6 = 2

6 - 0 = 6   3 - 2 = 1   5 - 1 = 4   6 - 4 = 2

7 - 5 = 2   7 - 7 = 0   7 - 6 = 1   8 - 8 = 0

7 - 4 = 3   9 - 7 = 2   4 - 2 = 2   8 - 6 = 2

7 - 0 = 7   4 - 2 = 2   9 - 5 = 4   4 - 0 = 4

6 - 4 = 2   1 - 1 = 0   2 - 0 = 2   7 - 7 = 0

8 - 3 = 5   3 - 3 = 0   8 - 4 = 4   8 - 1 = 7

4 - 3 = 1   5 - 2 = 3   7 - 6 = 1   6 - 6 = 0

8 - 0 = 8   8 - 4 = 4   7 - 4 = 3   3 - 0 = 3

Name_____

When you have bigger numbers to subtract, you subtract them from each other from right to left. For instance, if you want to subtract

$$\begin{array}{r} 53 \\ -21 \\ \hline \end{array}$$

you must first subtract the right hand column, the 3 and the 1. This gives you 2 in the right-hand answer space.

$$\begin{array}{r} 53 \\ -21 \\ \hline 2 \end{array}$$

Then you subtract the numbers in the left-hand column. 5 - 2 = 3. This gives you

$$\begin{array}{r} 53 \\ -21 \\ \hline 32 \end{array}$$ and that is the solution to the problem.

Instructions: Subtract the numbers in the problems on this page and write your answers below the line. Remember to subtract the right-hand column first.

Examples:

	43	95	20
	-40	-12	-10
	3	83	10

43	66	57	83	32
-41	-61	-31	-11	-20
2	5	26	72	12

76	96	82	66	45
-12	-10	-30	-12	-33
64	86	52	54	12

94	98	64	23	51
-93	-35	-22	-12	-10
1	63	42	11	41

94	90	97	88	85
-82	-40	-35	-40	-83
12	50	62	48	2

46	43	95	73	93
-40	-22	-61	-60	-60
6	21	34	13	33

92	45	36	87	79
-20	-24	-12	-81	-26
72	21	24	6	53

Name_____

Subtracting numbers side-by side is a little bit tricky. The numbers aren't neatly lined up in columns for you. But if you remember to work from the right to the left, it isn't hard. In the problem 53-21= ____, you first subtract the right-hand numbers (the numbers in the ones place), and write down the answer on the right side of your answer space, like this: 53-21= __2 (because 3-1=2). Then subtract the numbers in the tens place, the 5 and the 2, and write your answer to the left of the answer you got before, like this: 53-21= __32. This is your answer.

Instructions: Subtract the numbers in the problems on this page and write down your answers to the right of the equals signs.

Examples: 73-42= 31   95-12= 83   20-10= 10

43 – 41 = 2   66 – 61 = 5   57 – 31 = 26   83 – 11 = 72

32 – 20 = 12   45 – 33 = 12   51 – 10 = 41   85 – 83 = 2

93 – 60 = 33   79 – 26 = 53   93 – 40 = 53   95 – 73 = 22

67 – 22 = 45   34 – 23 = 11   85 – 41 = 44   95 – 22 = 73

27 – 10 = 17   97 – 20 = 77   46 – 40 = 6   93 – 92 = 1

76 – 12 = 64   96 – 15 = 81   82 – 30 = 52   66 – 12 = 54

23 – 12 = 11   88 – 40 = 48   73 – 60 = 13   87 – 81 = 6

83 – 21 = 62   55 – 42 = 13   54 – 13 = 41   45 – 24 = 21

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When the top number in any column is smaller than the bottom number, you need to make the top number bigger. You do this by borrowing from the first column to the left.

For instance, in the problem: 53   7 is larger than 3, so you can't subtract
                             −37   it. But remember, the "5" in the number
                                    53 is really 5 tens. So you can borrow one
set of ten from 5, and that leaves 4 in the tens place.

    4
    5̸3   Next, add the ten you borrowed to the 3 in the ones place, and you
   −37   get 13.

   4 13
   5̸3̸   Now, 13−7=6, and 4−3 = 1. Your answer is 16.
  −37
   16

Look at this problem: 24   You can't subtract 9 from 4. So you
                     −19   borrow ten ones from the tens place and add
                          it to the 4. Then subtract. 14−9 = 5, and
       1 14   1−1 = 0. (Remember, you don't have to write
       2̸4̸   down the 0 if it is the first digit in a
     −19   number.)
       5

Instructions: Subtract the numbers in the problems on these pages. Borrow numbers from the next column when you need to.

            7 16   4 13
Examples: 8̸6̸   5̸3̸
           −58   −39
            28   14

65	94	63	87	55
−26	−89	−48	−18	−36
39	5	15	69	19

58	45	53	35	25
−29	−17	−37	−26	−17
29	28	16	9	8

65	94	43	34	64
−56	−59	−17	−16	−37
9	35	26	18	27

Whole Numbers – Subtraction
Activity Sheet 16A, Continued
Borrowing: Numbers in a Column

Name _____

$$\begin{array}{r} 94 \\ -19 \\ \hline 75 \end{array}$$
$$\begin{array}{r} 86 \\ -19 \\ \hline 67 \end{array}$$
$$\begin{array}{r} 41 \\ -29 \\ \hline 12 \end{array}$$
$$\begin{array}{r} 95 \\ -67 \\ \hline 28 \end{array}$$
$$\begin{array}{r} 93 \\ -34 \\ \hline 59 \end{array}$$

$$\begin{array}{r} 95 \\ -57 \\ \hline 38 \end{array}$$
$$\begin{array}{r} 64 \\ -26 \\ \hline 38 \end{array}$$
$$\begin{array}{r} 95 \\ -26 \\ \hline 69 \end{array}$$
$$\begin{array}{r} 84 \\ -27 \\ \hline 57 \end{array}$$
$$\begin{array}{r} 83 \\ -67 \\ \hline 16 \end{array}$$

$$\begin{array}{r} 67 \\ -49 \\ \hline 18 \end{array}$$
$$\begin{array}{r} 56 \\ -48 \\ \hline 8 \end{array}$$
$$\begin{array}{r} 87 \\ -29 \\ \hline 58 \end{array}$$
$$\begin{array}{r} 61 \\ -59 \\ \hline 2 \end{array}$$
$$\begin{array}{r} 66 \\ -48 \\ \hline 18 \end{array}$$

$$\begin{array}{r} 62 \\ -18 \\ \hline 44 \end{array}$$
$$\begin{array}{r} 73 \\ -57 \\ \hline 16 \end{array}$$
$$\begin{array}{r} 57 \\ -49 \\ \hline 8 \end{array}$$
$$\begin{array}{r} 65 \\ -48 \\ \hline 17 \end{array}$$
$$\begin{array}{r} 78 \\ -59 \\ \hline 19 \end{array}$$

$$\begin{array}{r} 86 \\ -57 \\ \hline 29 \end{array}$$
$$\begin{array}{r} 91 \\ -64 \\ \hline 27 \end{array}$$
$$\begin{array}{r} 34 \\ -17 \\ \hline 17 \end{array}$$
$$\begin{array}{r} 80 \\ -64 \\ \hline 16 \end{array}$$
$$\begin{array}{r} 54 \\ -29 \\ \hline 25 \end{array}$$

Whole Numbers – Subtraction   Name _____
Activity Sheet 17A
Borrowing: Numbers in a Row

    When your problem is arranged in a row, you don't have a nice handy column for the number you carried to go above. You can put that number above the proper digit in the last number of the problem like this:

$$\overset{4\ 16}{\not5\not6} - 37 = \underline{\ \ 9\ \ }$$

The 1 represents a ten, so be sure you put it with the number which is in the ones place. Then when you subtract numbers in the ones place, don't forget to subtract the 1 you carried over from the tens place!

$$\overset{4\ 16}{\not5\not6} - 37 = \underline{\ \ 19\ \ }$$

    Instructions: Subtract the numbers in the problems on this page, and carry numbers back to the proper place whenever you need to.

Examples: $\overset{1\ 14}{2\not4} - 19 = 5$ $\overset{7\ 16}{\not8\not6} - 58 = 28$ $\overset{4\ 13}{\not5\not3} - 39 = 14$

56 – 37 = 19	25 – 17 = 8	64 – 37 = 27	93 – 38 = 55
83 – 67 = 16	66 – 49 = 17	78 – 59 = 19	54 – 29 = 25
84 – 68 = 16	65 – 48 = 17	51 = 49 = 2	84 – 27 = 57
95 – 68 = 27	35 – 16 = 19	36 – 27 = 9	87 – 18 = 69
63 – 48 = 15	53 – 37 = 16	43 – 17 = 26	41 – 29 = 12
95 – 28 = 67	87 – 29 = 58	64 – 47 = 17	34 – 17 = 17
68 – 39 = 29	73 – 57 = 16	56 – 48 = 8	64 – 26 = 38

Whole Numbers - Subtraction
Activity Sheet 18A   Name_____
Subtracting Two Three-Digit Numbers in a Column

In these problems you are subtracting bigger numbers. You may have to borrow 10 from the next column. In some problems you may have to borrow twice - once from the tens column and once from the hundreds column.

Instructions: Subtract the numbers on this page and put the answers below the line. Borrow whenever you need to.

Examples:

$$\begin{array}{r} 3\overset{16}{\cancel{0}}16 \\ \cancel{416} \\ -347 \\ \hline 69 \end{array} \qquad \begin{array}{r} 6\overset{13}{\cancel{3}}13 \\ \cancel{743} \\ -159 \\ \hline 584 \end{array} \qquad \begin{array}{r} 884 \\ -261 \\ \hline 623 \end{array}$$

217 -197 20	834 -635 199	566 -391 175	554 -109 445	909 -435 474
854 -834 20	592 -102 490	270 -225 45	117 -101 16	345 -302 43
954 -506 448	785 -714 71	929 -523 406	500 -379 121	978 -569 409
594 -195 399	813 -804 9	590 -491 99	920 -357 563	822 -368 454
658 -246 412	505 -327 178	342 -122 220	701 -484 217	465 -320 145
994 -108 886	599 -135 464	206 -131 75	939 -760 179	268 -182 86

Whole Numbers – Subtraction   Name _____
Activity Sheet 19A
Checking Subtraction by Adding

     One of the simplest ways to check subtraction is to add the answer to the bottom number of the problem and see if it adds up to the top number:

$$\downarrow \begin{array}{r} 7 \\ -5 \\ \hline 2 \end{array} \qquad \uparrow \begin{array}{r} 7 \\ 5 \\ +2 \end{array}$$

As you can see, you subtract ↓ DOWN; but you add ↑ UP to see if your subtraction was correct. When you add up   to check your subtraction and the top number is different than the original top number, you need to re-do your subtraction.

Check these subtraction problems by adding up ↑ :

$$\begin{array}{r} 7 \\ -3 \\ \hline 5 \end{array} \qquad \begin{array}{r} ? \\ 3 \\ +5 \end{array}$$ 3 + 5 = 8, not 7, so
                                               the problem was wrong.

$$\begin{array}{r} 10 \\ -\ 2 \\ \hline 8 \end{array} \qquad \begin{array}{r} ? \\ 8 \\ +2 \end{array}$$ 8 + 2 = 10, which is
                                               the top number, so this
                                               problem was correct.

     Instructions: Check the subtraction problems on this page by adding ↑ up. If a problem is wrong, cross out the wrong answer and write the correct answer below it.

Examples:

$$\begin{array}{r} 128 \\ -\ 99 \\ \hline 29 \end{array}$$ (this answer was right – no correction needed)

$$\begin{array}{r} 1028 \\ -\ 879 \\ \hline \cancel{159} \\ 149 \end{array}$$ (this answer was wrong, so it was corrected)

$$\begin{array}{r} 65 \\ -\ 26 \\ \hline 39 \end{array} \qquad \begin{array}{r} 7 \\ -6 \\ \hline \cancel{2} \\ 1 \end{array} \qquad \begin{array}{r} 99 \\ -\ 84 \\ \hline 15 \end{array} \qquad \begin{array}{r} 10 \\ -\ 4 \\ \hline \cancel{7} \\ 6 \end{array}$$

$$\begin{array}{r} 104 \\ -\ 68 \\ \hline \cancel{46} \\ 36 \end{array} \qquad \begin{array}{r} 212 \\ -144 \\ \hline 68 \end{array} \qquad \begin{array}{r} 44 \\ -18 \\ \hline 26 \end{array} \qquad \begin{array}{r} 17 \\ -\ 8 \\ \hline 9 \end{array}$$

$$\begin{array}{r} 16 \\ -14 \\ \hline \cancel{3} \\ 2 \end{array} \qquad \begin{array}{r} 26 \\ -10 \\ \hline 16 \end{array} \qquad \begin{array}{r} 48 \\ -19 \\ \hline \cancel{39} \\ 29 \end{array} \qquad \begin{array}{r} 144 \\ -122 \\ \hline 22 \end{array}$$

$$\begin{array}{r} 898 \\ -146 \\ \hline \cancel{742} \\ 752 \end{array} \qquad \begin{array}{r} 72 \\ -38 \\ \hline 34 \end{array} \qquad \begin{array}{r} 99 \\ -66 \\ \hline 33 \end{array} \qquad \begin{array}{r} 196 \\ 78 \\ \hline 118 \end{array}$$

CHECK SHEET
Whole Numbers - Subtraction
Activity Sheet 19A, Continued
Checking Subtraction By Adding

```
  1183          6139           43          7172
-  647         -4350          -16         -1691
  ───          ────           ──          ─────
   536          1789           27          5481
                                           5481
```

```
   13            89           723            1
 -  9           -42          -418           -1
  ───           ──           ────           ──
    4            47           205            1
                              305            0
```

Here are several problems arranged in rows for you to try. Sometimes
you will have to borrow numbers and sometimes you will not.

Instructions: Subtract the numbers in the problems on this page, and
put your answers to the right of the equals sign. Sometimes you will need
to borrow numbers. Write the numbers you get when you borrow above the proper
number of the problem.

$$
\begin{array}{lll}
\text{Examples:} & \overset{1\ 13\ 11}{\cancel{2}\ \cancel{4}\ \cancel{1}} - 56 = 185 & 879 - 642 = 237 & \overset{7\ 16}{1\ 0\ \cancel{8}\ \cancel{6}} - 807 = 279
\end{array}
$$

84 – 22 = 62	689 – 29 = 660	290 – 14 = 276
92 – 68 = 24	353 – 86 = 267	76 – 33 = 43
97 – 31 = 66	6854 – 131 = 6723	556 – 545 = 11
85 – 69 = 16	41 – 33 = 8	51 – 18 = 33
610 – 183 = 427	972 – 748 = 224	34 – 24 = 10
443 – 167 = 276	888 – 799 = 89	446 – 175 = 271
688 – 633 = 55	380 – 324 = 56	72 – 38 = 34
71 – 4 = 67	100 – 6 = 94	468 – 23 = 445
56 – 36 = 20	84 – 78 = 6	3035 – 29 = 3006
891 – 15 = 876	903 – 14 = 889	8734 – 586 = 8148

Try your new skill at subtracting all kinds of problems in columns.
Sometimes you will have to borrow and sometimes you will not.

Instructions: Subtract the numbers in the problems on this page, and
put your answers below the lines. Sometimes you will need to borrow. Write
the numbers you get when you borrow above the proper columns.

```
                1 13 11                                        7 16
   Examples:     2  4  1            8 7 9            1 0  8  6
              -     5  6          - 6 4 2          -    8 0 7
              ─────────          ─────────        ───────────
                 1  8  5            2 3 7               2 7 9
```

76	71	888	18	97
−33	− 4	− 95	−11	−31
43	67	793	7	66
981	100	446	610	6854
− 15	− 6	−175	−183	− 131
966	94	271	427	6723
903	468	688	748	556
− 14	−166	−460	− 57	−545
889	302	228	691	11
871	56	387	34	85
− 93	− 3	− 98	−24	−69
778	53	289	10	16
290	84	38	442	41
− 51	−74	−13	−199	−33
239	10	25	243	8
6885	3812	695	1009	484
− 598	− 156	− 37	− 578	− 87
6287	3656	658	431	397
8902	939	4033	321	313
−2110	− 99	−1324	−123	−157
6792	840	2709	198	156

The numbers from 0 to 9 are called one-digit numbers. Here are some problems in which you must multiply two one-digit numbers together. They are arranged in columns, that is, with one number over the other.

Instructions: Multiply each column of one-digit numbers and write the answer below the line.

Examples:

$$\begin{array}{r} 1 \\ \times 4 \\ \hline 4 \end{array} \qquad \begin{array}{r} 8 \\ \times 3 \\ \hline 24 \end{array} \qquad \begin{array}{r} 9 \\ \times 0 \\ \hline 0 \end{array}$$

$\begin{array}{r}1\\ \times\,5 \\ \hline 5\end{array}$	$\begin{array}{r}1\\ \times\,8 \\ \hline 8\end{array}$	$\begin{array}{r}7\\ \times\,4 \\ \hline 28\end{array}$	$\begin{array}{r}5\\ \times\,8 \\ \hline 40\end{array}$	$\begin{array}{r}1\\ \times\,5 \\ \hline 5\end{array}$
$\begin{array}{r}0\\ \times\,9 \\ \hline 0\end{array}$	$\begin{array}{r}4\\ \times\,8 \\ \hline 32\end{array}$	$\begin{array}{r}7\\ \times\,9 \\ \hline 63\end{array}$	$\begin{array}{r}7\\ \times\,6 \\ \hline 42\end{array}$	$\begin{array}{r}1\\ \times\,0 \\ \hline 0\end{array}$
$\begin{array}{r}6\\ \times\,7 \\ \hline 42\end{array}$	$\begin{array}{r}3\\ \times\,3 \\ \hline 9\end{array}$	$\begin{array}{r}4\\ \times\,2 \\ \hline 8\end{array}$	$\begin{array}{r}7\\ \times\,7 \\ \hline 49\end{array}$	$\begin{array}{r}9\\ \times\,3 \\ \hline 27\end{array}$
$\begin{array}{r}6\\ \times\,6 \\ \hline 36\end{array}$	$\begin{array}{r}3\\ \times\,8 \\ \hline 24\end{array}$	$\begin{array}{r}8\\ \times\,6 \\ \hline 48\end{array}$	$\begin{array}{r}5\\ \times\,7 \\ \hline 35\end{array}$	$\begin{array}{r}7\\ \times\,3 \\ \hline 21\end{array}$
$\begin{array}{r}8\\ \times\,0 \\ \hline 0\end{array}$	$\begin{array}{r}7\\ \times\,7 \\ \hline 49\end{array}$	$\begin{array}{r}0\\ \times\,7 \\ \hline 0\end{array}$	$\begin{array}{r}4\\ \times\,6 \\ \hline 24\end{array}$	$\begin{array}{r}0\\ \times\,9 \\ \hline 0\end{array}$
$\begin{array}{r}8\\ \times\,4 \\ \hline 32\end{array}$	$\begin{array}{r}2\\ \times\,0 \\ \hline 0\end{array}$	$\begin{array}{r}2\\ \times\,4 \\ \hline 8\end{array}$	$\begin{array}{r}5\\ \times\,1 \\ \hline 5\end{array}$	$\begin{array}{r}1\\ \times\,5 \\ \hline 5\end{array}$
$\begin{array}{r}8\\ \times\,9 \\ \hline 72\end{array}$	$\begin{array}{r}1\\ \times\,1 \\ \hline 1\end{array}$	$\begin{array}{r}9\\ \times\,5 \\ \hline 45\end{array}$	$\begin{array}{r}2\\ \times\,3 \\ \hline 6\end{array}$	$\begin{array}{r}9\\ \times\,9 \\ \hline 81\end{array}$
$\begin{array}{r}0\\ \times\,3 \\ \hline 0\end{array}$	$\begin{array}{r}7\\ \times\,4 \\ \hline 28\end{array}$	$\begin{array}{r}0\\ \times\,4 \\ \hline 0\end{array}$	$\begin{array}{r}6\\ \times\,0 \\ \hline 0\end{array}$	$\begin{array}{r}6\\ \times\,8 \\ \hline 48\end{array}$

In these problems, the one-digit numbers are arranged in rows.

Instructions: Multiply each row of one-digit numbers and write the answer to the right of the equals (=) sign.

Examples: $1 \times 4 = 4$ $8 \times 3 = 24$ $9 \times 0 = 0$

$1 \times 5 = 5$ $1 \times 0 = 0$ $9 \times 3 = 27$ $7 \times 3 = 21$

$0 \times 9 = 0$ $1 \times 6 = 6$ $9 \times 9 = 81$ $6 \times 8 = 48$

$6 \times 0 = 0$ $2 \times 3 = 6$ $5 \times 1 = 5$ $4 \times 6 = 24$

$5 \times 7 = 35$ $7 \times 7 = 49$ $7 \times 6 = 42$ $5 \times 8 = 40$

$7 \times 4 = 28$ $7 \times 9 = 63$ $4 \times 2 = 8$ $8 \times 6 = 48$

$0 \times 7 = 0$ $2 \times 4 = 8$ $9 \times 5 = 45$ $0 \times 4 = 0$

$7 \times 4 = 28$ $1 \times 1 = 1$ $2 \times 0 = 0$ $7 \times 7 = 49$

$3 \times 8 = 24$ $3 \times 3 = 9$ $4 \times 8 = 32$ $1 \times 8 = 8$

$3 \times 4 = 12$ $2 \times 5 = 10$ $6 \times 7 = 42$ $6 \times 6 = 36$

$8 \times 0 = 0$ $8 \times 4 = 32$ $8 \times 9 = 72$ $0 \times 3 = 0$

Whole Numbers – Multiplication   Name _____
Activity Sheet 24A
Multiplying one Digit Times Two Digits: Column

   When you have bigger numbers to multiply, you multiply them together
from right to left. For instance, if you want to multiply:

$$\begin{array}{r} 21 \\ \times\ 3 \\ \hline \end{array}$$

you must first multiply the right hand column, the 1 and the 3. This gives
you 3 in the right-hand answer space.

$$\begin{array}{r} 21 \\ \times\ 3 \\ \hline 3 \end{array}$$

Then you multiply the number on the bottom right times the number in the left
hand column. 2 x 3 = 6. This gives you:

$$\begin{array}{r} 21 \\ \times\ 3 \\ \hline 63 \end{array}$$

and that is the solution to the problem.

   Instructions: Multiply the numbers in the problems on this page and
write you answers below the line. Remember to multiply the right-hand column
first.

Examples:	40	92	20
	x 3	x 3	x 7
	120	276	140

41	66	37	13	20
x 3	x 1	x 1	x 1	x 2
123	66	37	13	40

14	90	30	11	45
x 2	x 6	x 2	x 6	x 1
28	540	60	66	45

93	90	62	23	51
x 3	x 8	x 4	x 2	x 0
279	720	248	46	0

92	90	71	40	83
x 4	x 4	x 9	x 8	x 3
368	360	639	320	249

Whole Numbers - Multiplication
Activity Sheet 24A
Multiplying Two-Digit Numbers: Column   (Continued)

46	22	91	73	60
x 0	x 3	x 5	x 0	x 3
0	66	455	0	180

20	42	34	81	92
x 2	x 4	x 2	x 7	x 4
40	168	68	567	368

Multiplying numbers side-by-side is a little bit tricky. The numbers aren't lined up in columns for you. But if you remember to work from the right to the left, it isn't hard. In the problem 21 x 3 = _____, you first multiply the right-hand numbers (the numbers in the ones place), and write down the answer on the right side of your answer space, like this: 21 x 3 =   3   (because 1 x 3 = 3). Then multiply your right-hand number times the number in the tens place, the 3 times the 2 and write your answer to the left of the answer you got before, like this: 21 x 3 =   63 . This is your answer.

Instructions: Multiply the numbers in the problems on this page and write down your answers to the right of the equals signs.

Examples: 40 x 3 = 120   92 x 4 = 368   20 x 0 = 0

41 x 3 = 123   66 x 1 = 66   37 x 1 = 37   13 x 1 = 13

20 x 2 = 40   42 x 3 = 126   51 x 0 = 0   83 x 3 =   249

60 x 3 = 180   92 x 4 = 368   93 x 0 = 0   73 x 3 =   219

64 x 2 = 128   20 x 4 = 80   81 x 5 = 405   22 x 4 =   88

10 x 7 = 70   20 x 7 = 140   46 x 0 = 0   92 x 3 = 276

14 x 2 = 28   90 x 6 = 540   30 x 2 = 60   12 x 4 = 48

23 x 2 = 46   40 x 8 = 320   73 x 0 = 0   81 x 7 = 567

21 x 3 = 63   54 x 2 = 108   51 x 4 = 204   42 x 4 = 168

54	88	14	98	56
x 9	x 4	x 7	x 6	x 7
486	352	98	588	392

72	65	44	57	62
x 9	x 8	x 4	x 3	x 8
648	520	176	171	496

69	59	87	48	45
x 6	x 2	x 9	x 6	x 7
414	118	783	288	315

67	87	25	66	55
x 3	x 4	x 8	x 4	x 7
201	348	200	264	385

39	65	43	16	99
x 3	x 7	x 9	x 8	x 4
117	455	387	128	396

34	15	13	99	66
x 7	x 5	x 7	x 4	x 5
238	75	91	396	330

15	26	53	17	59
x 7	x 5	x 7	x 5	x 8
105	130	371	85	472

35	87	68	84	65
x 6	x 7	x 3	x 9	x 6
210	609	204	756	390

Whole Numbers – Multiplication
Activity Sheet 27A
Multiplying Two-Digit Numbers

Name _____

   Instructions: Multiply the numbers in the problems below. Make sure
you line up the "ones" answer under the ones place, and the "tens" under
the tens place, then add them straight down.

41	66	37	13	20
x 43	x 61	x 51	x 81	x 32
1763	4026	1887	1053	640

14	90	30	11	45
x 72	x 16	x 82	x 66	x 31
1008	1440	2460	726	1395

93	90	62	23	51
x 93	x 18	x 24	x 12	x 10
8649	1620	1488	276	510

92	90	71	40	83
x 84	x 44	x 29	x 88	x 83
7728	3960	2059	3520	6889

46	22	91	73	60
x 40	x 43	x 65	x 62	x 93
1840	946	5915	4526	5580

20	42	34	81	92
x 92	x 24	x 12	x 87	x 74
1840	1008	408	7047	6808

In the last two worksheets you learned how to multiply two digit numbers, and how to carry numbers over to the next columns. For a lot of problems, you will have to do both things. Here is an example:

①

$$43$$
$$x\ 26$$
$$258$$
$$86$$
$$1118$$

{ 6 x 3 = 18, put down the 8 and carry the 1.
6 x 4 = 24, plus the 1 you carried = 25. Your "ones" answer is 258.

{ 2 x 3 = 6, and 2 x 4 = 8. Your "tens" answer is 86.

{ 8 + nothing = 8, 5 + 6 = 11, put down the 1 and carry a 1, 2 + 8 + the 1 you carried = 11. Your final answer is 1118.

Now work through this problem, step by step:

③
④

$$37$$
$$x\ 56$$
$$222$$
$$185$$
$$2072$$

{ 6 x 7 = 42, put down the 2 and carry the 4.
6 x 3 = 18, plus the 4 you carried = 22. Your "ones" answer is 222.

{ 5 x 7 = 35, put down the 5 and carry the 3. (You could erase the old "4" you carried before or cross it out.) 5 x 3 = 18, plus the 3 you just now carried = 18. Your "tens" answer is 185.

{ 2 + nothing = 2, 2 + 5 = 7, 2 + 8 = 10, put down the 0 and carry the 1, 1 + the 1 you carried = 2. Your final answer is 2072.

Instructions: Multiply the numbers in the problems on these pages. Make sure you line up the answers correctly. Remember to carry numbers over to the next column when you need to.

65	84	68	87	35
x 26	x 99	x 43	x 17	x 56
1690	8316	2924	1479	1960

59	17	53	26	15
x 28	x 45	x 37	x 25	x 27
1652	765	1961	650	405

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Whole Numbers - Multiplication   Name _____
Activity Sheet 28A
Carrying: Two Digit Numbers   (Continued)

65 x 55 3575	99 x 54 5346	13 x 47 611	15 x 35 525	34 x 67 2278
99 x 14 1386	16 x 89 1424	41 x 29 1189	65 x 97 6305	39 x 93 3627
55 x 97 5335	66 x 24 1584	25 x 98 2450	87 x 24 2088	67 x 83 5561
45 x 67 3015	48 x 56 2688	87 x 29 2523	59 x 51 3009	69 x 46 3174
62 x 18 1116	57 x 73 4161	49 x 44 2156	65 x 48 3120	78 x 59 4602
56 x 87 4872	98 x 96 9408	14 x 37 518	88 x 64 5632	54 x 29 1566

Name _____

In these problems you are multiplying bigger numbers. You may have to carry numbers over to the next column. Also, you need to do the problem in three steps:

(1) multiply the ones place
(2) multiply the tens place
(3) multiply the hundreds place

Work through this example step by step:

①②
②④
  3 4 7
x 4 1 6
⓪①
2 0 8 2
3 4 7
1 3 8 8
1 4 4 3 5 2

$\begin{cases} 6 \times 7 = 42, \text{ write down the 2 and carry the 4.} \\ 6 \times 4 = 24 \text{ plus the 4 you carried} = 28, \text{ write} \\ \text{down 8 and carry 2.} \quad 6 \times 3 = 18 \text{ plus the 2} \\ \text{you carried} = 20. \quad \text{Your "ones" answer is 2082.} \end{cases}$

$\begin{cases} 1 \times 7 = 7. \quad 1 \times 4 = 4. \quad 1 \times 3 = 3. \quad \text{Your} \\ \text{"tens" answer is 347.} \end{cases}$

$\begin{cases} 4 \times 7 = 28, \text{ write down 8 and carry 2.} \quad 4 \times 4 = 16, \\ \text{plus the 2 you carried} = 18, \text{ write down 8 and} \\ \text{carry 1.} \quad 4 \times 3 = 12 \text{ plus the 1 you carried} = 13. \\ \text{Your "hundreds" answer is 1388.} \end{cases}$

$\begin{cases} 2 + \text{nothing} = 2. \quad 8 + 7 = 15, \text{ write down 5 and} \\ \text{carry 1.} \quad 8 + 4 \text{ plus the 1 you carried} = 13, \text{ put} \\ \text{down the 3 and carry the 1.} \quad 2 + 3 + 8 \text{ plus the} \\ 1 \text{ you carried} = 14, \text{ put down the 4 and carry the} \\ 1. \quad 3 + \text{the 1 you carried} = 4. \quad 1 + \text{nothing} = 1. \\ \text{Your final answer is 144352.} \end{cases}$

Instructions: Multiply the numbers on this page. Make sure you line up the answers correctly. Remember to carry numbers over to the next column when you need to.

197	834	391	554	909
x 217	x 635	x 566	x 109	x 435
42749	529590	221306	60386	395415

854	592	225	101	345
x 834	x 102	x 270	x 117	x 302
712236	60384	60750	11817	104190

506 x 954 482724	714 x 785 560490	523 x 929 485867	379 x 500 189500	978 x 569 556482
195 x 594 115830	813 x 804 653652	590 x 491 289690	357 x 920 328440	368 x 822 302496
658 x 246 161868	505 x 327 165135	342 x 122 41724	701 x 484 339284	320 x 465 148800
108 x 994 107352	135 x 599 80865	131 x 206 26986	760 x 939 713640	268 x 182 48776

Name _____

$$\frac{5}{2\overline{)10}}\quad 2 \times 5 = 10 \qquad\qquad \frac{18}{2\overline{)36}}\quad 2 \times 18 = 36 \qquad\qquad \frac{8}{6\overline{)48}}\quad 6 \times 8 = 48$$

$$14 \div 7 = 2 \quad 7 \times 2 = 14 \qquad 84 \div 7 = 12 \quad 7 \times 12 = 84 \qquad 16 \div 8 = 2 \quad 8 \times 2 = 16$$

$$\frac{3}{3\overline{)9}}\quad 3 \times 3 = 9 \qquad\qquad \frac{5}{7\overline{)35}}\quad 7 \times 5 = 35 \qquad\qquad \frac{6}{5\overline{)30}}\quad 5 \times 6 = 30$$

$$56 \div 7 = 8 \quad 7 \times 8 = 56 \qquad 63 \div 9 = 7 \quad 9 \times 7 = 63 \qquad 27 \div 3 = 9 \quad 3 \times 9 = 27$$

$$\frac{7}{4\overline{)28}}\quad 4 \times 7 = 28 \qquad\qquad 78 \div 6 = 13 \quad 6 \times 13 = 78 \qquad \frac{6}{4\overline{)24}}\quad 4 \times 6 = 24$$

$$40 \div 5 = 8 \quad 5 \times 8 = 40 \qquad \frac{12}{7\overline{)84}}\quad 7 \times 12 = 84 \qquad 35 \div 7 = 5 \quad 7 \times 5 = 35$$

$$\frac{2}{8\overline{)16}}\quad 8 \times 2 = 16 \qquad\qquad 30 \div 5 = 6 \quad 5 \times 6 = 30 \qquad \frac{2}{7\overline{)14}}\quad 7 \times 2 = 14$$

CHECK SHEET
Whole Numbers
Activity Sheet 31A
Dividing One Digit Into One or Two

Name_____

Instructions: Divide the smaller number into the larger number in the problems below. Remember that there are two "symbols" for dividing. $5\overline{)10}$ and $10 \div 5$, both mean the same thing: divide 5 into 10. Put the answer to the right of the equals (=) sign, or above the line.

$1 \div 1 = 1$ $2 \div 2 = 1$ $4 \div 2 = 2$ $10 \div 5 = 2$

$9 \div 3 = 3$ $8 \div 2 = 4$ $4 \div 4 = 1$ $12 \div 2 = 6$

$10 \div 2 = 5$ $6 \div 3 = 2$ $6 \div 2 = 3$ $9 \div 9 = 1$

$3\overline{)9}$ = 3 $2\overline{)4}$ = 2 $5\overline{)10}$ = 2 $2\overline{)4}$ = 2

$4\overline{)4}$ = 1 $5\overline{)5}$ = 1 $2\overline{)8}$ = 4 $2\overline{)6}$ = 3

$2\overline{)16}$ = 8 $3\overline{)15}$ = 5 $4\overline{)16}$ = 4 $3\overline{)12}$ = 4

$5\overline{)15}$ = 3 $3\overline{)18}$ = 6 $6\overline{)24}$ = 4 $8\overline{)24}$ = 3

$3\overline{)27}$ = 9 $4\overline{)28}$ = 7 $7\overline{)14}$ = 2 $9\overline{)36}$ = 4

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Name_____

ANSWER SHEET

	A	B	C	D
1.			X	
2.	X			
3.	X			
4.				X
5.			X	
6.				X
7.		X		
8.	X			
9.	X			
10.				X

	A	B	C	D
11.		X		
12.				X
13.			X	
14.				X
15.	X			
16.		X		
17.			X	
18.			X	
19.				X
20.	X			

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Name_____

```
    1
5/ 60
   5
   1
```
Second, multiply 1 x 5. It equals 5. Subtract this from 6 and your remainder is 1.

```
    1
5/ 60
   5
  10
```
Bring down the next digit, the 0.

Divide 5 into the new number, which is 10, and put the answer up above.

```
   12
5/ 60
   5
  10
```
Check for a remainder. Multiply 2 x 5; your answer is 10. Put this at the bottom.

```
   12
5/ 60
   5
  10
  10
```
10 - 10 = 0, so there is no remainder.

```
   12
5/ 60
   5
  10
  10
   0
```

Instructions: Work the problems on this page. You will see two kinds of problems. One kind looks like this:

$2/\overline{88}$

The other looks like this: 88 ÷ 2 =

Whenever you see the second kind of problem, change it to the first kind, like this:

88 ÷ 2 = ⟶ 2/ 88   25 ÷ 5 = ⟶ 5/ 25

Then go ahead and solve the problem using the long division method.

```
   22            10             5              4        33
3/66          9/ 90          6/30          3/ 12      1/ 33

    4             5            12             10         4
4/ 16         2/ 10          3/ 36          8/ 80      6/ 24
```

CHECK SHEET
Whole Numbers - Division
Activity Sheet 33A: Continued
Dividing One Digit Into Two Digits

Name_____

$40 \div 8$	$88 \div 4$	$64 \div 8$	$70 \div 5$	$45 \div 9$
$\dfrac{5}{8/40}$	$\dfrac{22}{4/88}$	$\dfrac{8}{8/64}$	$\dfrac{14}{5/70}$	$\dfrac{5}{9/45}$

$\dfrac{9}{9/81}$	$\dfrac{9}{8/72}$	$\dfrac{6}{6/36}$	$\dfrac{11}{6/66}$	$\dfrac{8}{7/56}$

$\dfrac{6}{7/42}$	$\dfrac{13}{5/65}$	$\dfrac{16}{4/64}$	$\dfrac{18}{3/54}$	$\dfrac{12}{6/72}$

$33 \div 3$	$45 \div 5$	$18 \div 3$	$15 \div 3$	$96 \div 8$
$\dfrac{11}{3/33}$	$\dfrac{9}{5/45}$	$\dfrac{6}{3/18}$	$\dfrac{5}{3/15}$	$\dfrac{12}{8/96}$

Name_____

When you divide one number into another, and you have something extra left over, that something extra is called the remainder.

$$2\overline{)\begin{matrix}2\\5\\\underline{4}\\1\end{matrix}}$$

This remainder can be written two ways:

$$2\overline{)\begin{matrix}2\ r=1\\5\\\underline{4}\\1\end{matrix}}\quad \text{or}\quad 2\overline{)\begin{matrix}2\tfrac{1}{2}\\5\\\underline{4}\\1\end{matrix}}$$

In method ① you just write "r=", then take the remainder and put it after the (=) sign like this:

$$2\overline{)\begin{matrix}2\ r=1\\5\\\underline{4}\\1\end{matrix}}$$

In method ② you take the remainder and set it over the number you're dividing with, in this case 2. The whole problem will look like this when finished.

$$2\overline{)\begin{matrix}2\tfrac{1}{2}\\5\\\underline{4}\\1\end{matrix}}$$

Instructions: Divide the single digit numbers into the two digit numbers in each problem; then put the remainder into the form indicated.

Examples:

$$3\overline{)10}^{\ \ r=}\qquad 7\overline{)87}^{\ \ -}\qquad 9\overline{)78}^{\ \ -}$$

$$3\overline{)\begin{matrix}3\ r=1\\10\\\underline{9}\\1\end{matrix}}\qquad 7\overline{)\begin{matrix}12\tfrac{3}{7}\\87\\\underline{7}\\17\\\underline{14}\\3\end{matrix}}\qquad 9\overline{)\begin{matrix}08\ \tfrac{6}{9}\\78\\\underline{0}\\78\\\underline{72}\\6\end{matrix}}$$

$$8\overline{)65}^{\ 8\,r=\,1}\qquad 6\overline{)84}^{\ 14\,r=0}\qquad 7\overline{)33}^{\ 4\ r=5}\qquad 3\overline{)89}^{\ 29r=\,2}\qquad 5\overline{)99}^{\ 19\ r=\,4}$$

$$9\overline{)78}^{\ 8\,\tfrac{6}{9}}\qquad 5\overline{)46}^{\ 9\,\tfrac{1}{5}}\qquad 5\overline{)19}^{\ 3\,\tfrac{4}{5}}\qquad 2\overline{)53}^{\ 26\,\tfrac{1}{2}}\qquad 1\overline{)28}^{\ 28\,\tfrac{0}{1}}$$

Name_____

$6\overline{)37}\ \ 6\frac{1}{6}$ $3\overline{)47}\ \ 15\frac{2}{3}$ $4\overline{)94}\ \ 23\frac{2}{4}$ $7\overline{)58}\ \ 8\frac{2}{7}$ $8\overline{)17}\ \ 2\frac{1}{8}$

$9\overline{)83}\ \ 9\ r=2$ $4\overline{)27}\ \ 6\ r=3$ $7\overline{)69}\ \ 9\ r=6$ $6\overline{)76}\ \ 12\ r=4$ $5\overline{)73}\ \ 14\ r=3$

$2\overline{)63}\ \ 31\frac{1}{2}$ $7\overline{)24}\ \ 3\frac{3}{7}$ $3\overline{)97}\ \ 32\frac{1}{3}$ $5\overline{)86}\ \ 17\frac{1}{5}$ $8\overline{)31}\ \ 3\frac{7}{8}$

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Whole Numbers – Division
Activity Sheet 35A
Dividing Two Digits into Three Digits

Name _____

On these pages you will be dividing two digit numbers into three digit numbers. This is the same as dividing a one digit number into a two digit number. You will divide from left to right, carry, and write remainders.

Instructions: Divide the numbers into each other and put the answers in the right places. Remember! Whenever you a see problem with a (÷) in it, you can write the problem over again using a (/‾‾‾) sign so it is easier to work.

Examples:

$217 \div 19 =$

$19\overline{)217}$

$$\begin{array}{r} 54 \\ 7\,\overline{83} \\ 83\overline{)635} \\ 581 \\ \hline 54 \end{array}$$

$366 \div 59 =$

$59\overline{)366}$

$$\begin{array}{r} 8 \\ 11\,\overline{19} \\ 19\overline{)217} \\ 19 \\ \hline ① \\ 127 \\ 19 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 12 \\ 6\,\overline{59} \\ 59\overline{)366} \\ 354 \\ \hline 12 \end{array}$$

$109 \div 55 = 1\ r=54$ or $1\frac{54}{55}$	$435 \div 90 = 4\ r=75$ or $4\frac{75}{90}$	$834 \div 85 = 9\ r=69$ or $9\frac{69}{85}$	$102 \div 59 = 1\ r=43$ or $1\frac{43}{59}$
$\dfrac{12\ r=6}{22\overline{)270}}$ or $12\frac{6}{22}$	$\dfrac{11\ r=7}{10\overline{)117}}$ or $11\frac{7}{10}$	$\dfrac{8\ r=30}{34\overline{)302}}$ or $8\frac{30}{34}$	$\dfrac{19\ r=4}{50\overline{)954}}$ or $19\frac{4}{50}$
$785 \div 71 = 11\ r=4$ or $11\frac{4}{71}$	$929 \div 52 = 17\ r=45$ or $17\frac{45}{52}$	$500 \div 37 = 13\ r=19$ or $13\frac{19}{37}$	$569 \div 97 = 5\ r=84$ or $5\frac{84}{97}$
$\dfrac{31\ r=5}{19\overline{)594}}$ or $31\frac{5}{19}$	$\dfrac{9\ r=75}{81\overline{)804}}$ or $9\frac{75}{81}$	$\dfrac{10\ r=1}{59\overline{)591}}$ or $10\frac{1}{59}$	$\dfrac{26\ r=10}{35\overline{)920}}$ or $26\frac{10}{35}$
$\dfrac{23\ r=17}{35\overline{)822}}$ or $23\frac{17}{35}$	$\dfrac{3\ r=51}{65\overline{)246}}$ or $3\frac{51}{65}$	$\dfrac{15\ r=27}{32\overline{)507}}$ or $15\frac{27}{32}$	$\dfrac{28\ r=6}{12\overline{)342}}$ or $28\frac{6}{12}$

Whole Numbers – Division   Name _____
Activity Sheet 36A
Dividing Three Digits into Four Digits

In this lesson you will divide three digit numbers into four digit numbers.
You do this the same way that you divide a two digit number into a three digit
number. You divide from from left to right, carry, and write remainders.

Instructions: Divide these numbers into each other and put the answers in
the correct places. Do not forget to change the (÷) problems to (/‾‾‾‾)
problems.

Examples:

$$3471 \div 416$$

$$416\overline{)3471}$$

$$444\overline{)8888} \quad \begin{array}{r} 20 \\ 888 \\ \hline 0008 \\ 0000 \\ \hline 8 \end{array} \quad \begin{array}{r} 8 \\ \overline{444} \end{array}$$

$$9545 \div 175 =$$

$$175\overline{)9545}$$

$$416\overline{)3471} \quad \begin{array}{r} 8 \\ 3328 \\ \hline 143 \end{array} \quad \begin{array}{r} 143 \\ \overline{416} \end{array}$$

$$175\overline{)9545} \quad \begin{array}{r} 54 \\ 875 \\ \hline 795 \\ 705 \\ \hline 95 \end{array} \quad \begin{array}{r} 95 \\ \overline{175} \end{array}$$

$4371 \div 509 =$	$3035 \div 156 =$	$8768 \div 246 =$	$8513 \div 313 =$
$509\overline{)4371}\ ^{8}\ \frac{299}{509}$	$156\overline{)3035}\ ^{19}\ \frac{71}{156}$	$246\overline{)8768}\ ^{35}\ \frac{158}{246}$	$313\overline{)8513}\ ^{27}\ \frac{62}{313}$
$484\overline{)1009}\ ^{2}\ \frac{41}{484}$	$271\overline{)2110}\ ^{7}\ \frac{213}{271}$	$100\overline{)4686}\ ^{46}\ \frac{86}{100}$	$101\overline{)1303}\ ^{12}\ \frac{91}{101}$

$4318 \div 491$	$994 \div 801$	$5995 \div 135$	$2061 \div 133$
$491\overline{)4318}\ ^{8}\ \frac{390}{491}$	$801\overline{)994}\ ^{1}\ \frac{193}{801}$	$135\overline{)5995}\ ^{44}\ \frac{55}{135}$	$133\overline{)2061}\ ^{15}\ \frac{66}{133}$
$714\overline{)7854}\ ^{11}\ \frac{0}{714}$	$379\overline{)5009}\ ^{13}\ \frac{82}{379}$	$978\overline{)999}\ ^{1}\ \frac{21}{978}$	$333\overline{)6666}\ ^{20}\ \frac{6}{333}$

$368\overline{)8228}\ ^{22}\ \frac{132}{368}$	$225\overline{)2706}\ ^{12}\ \frac{6}{225}$	$109\overline{)1022}\ ^{9}\ \frac{41}{109}$	$390\overline{)4910}\ ^{12}\ \frac{230}{390}$

MODULE PREVIEW/REVIEW
FRACTIONS

Instructions: Choose the correct answer to each question below. Mark the space under the letter of the correct answer on your answer sheet. Use scratch paper to help you work the problems.

ANSWER SHEET

Example: $2\frac{4}{5} =$ a) $\frac{12}{5}$ c) $\frac{14}{5}$

b) $\frac{24}{5}$ d) $\frac{8}{20}$

A	B	C	D
▯	▯	▮	▯

---

1. What fraction of this figure is shaded?
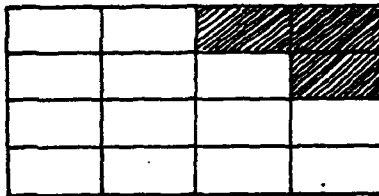
a) $\frac{3}{8}$ c) $\frac{1}{2}$

b) $\frac{13}{16}$ d) $\frac{3}{16}$

2. Which of these is an improper fraction?

a) $\frac{3}{4}$ c) $\frac{9}{7}$

b) $2\frac{1}{8}$ d) $1\frac{17}{22}$

3. $4\frac{3}{11} =$ a) $\frac{47}{11}$ c) $\frac{12}{11}$

b) $\frac{15}{11}$ d) $\frac{43}{11}$

4. $\frac{21}{24} =$ a) $2\frac{1}{24}$ c) $1\frac{2}{24}$

b) $\frac{7}{8}$ d) $\frac{7}{12}$

5. $\frac{21}{13} =$ a) $1\frac{4}{5}$ c) $1\frac{8}{13}$

                             b) $2\frac{8}{13}$ d) $2\frac{4}{5}$

6. The common denominator of

    $\frac{5}{6}$ and $\frac{2}{5}$ a) 13 c) 19
                                  b) 30 d) 7

7. $\frac{9}{23} + \frac{16}{23} =$ a) $1\frac{2}{23}$ c) $\frac{25}{46}$

                             b) $\frac{154}{529}$ d) $1\frac{7}{46}$

8. $\frac{2}{9} + \frac{3}{7} =$ a) $\frac{41}{63}$ c) $\frac{5}{63}$

                             b) $\frac{41}{16}$ d) $\frac{5}{16}$

9. $1\frac{3}{8} + 1\frac{1}{6} =$ a) $4\frac{1}{14}$ c) $2\frac{4}{14}$

                             b) $2\frac{13}{48}$ d) $2\frac{13}{24}$

10. $\frac{11}{12} - \frac{5}{12}$ a) $\frac{16}{12}$ c) $\frac{1}{2}$

                             b) 6 d) $\frac{16}{24}$

11. $\frac{1}{3} - \frac{1}{7} =$ a) $\frac{1}{21}$ c) $\frac{2}{21}$

                             b) $\frac{4}{21}$ d) $\frac{1}{10}$

Fractions
Module Preview/Review

12. $3\frac{2}{3} - 1\frac{3}{4} =$ a) $1\frac{11}{12}$ c) $2\frac{11}{12}$

                      b) $2\frac{1}{12}$ d) $1\frac{5}{7}$

13. $\frac{12}{15} \times \frac{9}{16} =$ a) $\frac{3}{5} \times \frac{3}{4}$ c) $\frac{4}{15} \times \frac{3}{16}$

                      b) $\frac{12}{5} \times \frac{9}{4}$ d) $\frac{1}{5} \times \frac{1}{4}$

14. $5 \times \frac{6}{11} =$ a) $\frac{30}{55}$ c) $2\frac{8}{11}$

                      b) 1 d) $3\frac{10}{11}$

15. $\frac{5}{11} \times \frac{3}{10} =$ a) $\frac{15}{11}$ c) $\frac{8}{110}$

                      b) $\frac{8}{21}$ d) $\frac{3}{22}$

16. $1\frac{1}{4} \times 3\frac{2}{10} =$ a) $\frac{7}{40}$ c) 4

                      b) $4\frac{1}{5}$ d) $\frac{32}{40}$

17. $\frac{4}{9} \div \frac{2}{7} =$ a) $\frac{2}{5}$ c) $\frac{8}{63}$

                      b) $1\frac{5}{9}$ d) $\frac{3}{7}$

Name _____

18. $3 \div \frac{3}{8} =$

    a) $\frac{9}{8}$ c) 8

    b) $3\frac{5}{16}$ d) $\frac{3}{24}$

19. $4\frac{2}{3} \div 1\frac{1}{4} =$

    a) $3\frac{11}{15}$ c) $5\frac{3}{12}$

    b) $6\frac{2}{7}$ d) $\frac{15}{56}$

20. $\frac{5}{6} =$

    a) 5.658 c) $.8333$

    b) $.5656$ d) 8.356

Fractions
Module Preview/Review
Answer Sheet   Name _____

1. A B C D   11. A B C D
    □ □ □ □   □ □ □ □

2. A B C D   12. A B C D
    □ □ □ □   □ □ □ □

3. A B C D   13. A B C D
    □ □ □ □   □ □ □ □

4. A B C D   14. A B C D
    □ □ □ □   □ □ □ □

5. A B C D   15. A B C D
    □ □ □ □   □ □ □ □

6. A B C D   16. A B C D
    □ □ □ □   □ □ □ □

7. A B C D   17. A B C D
    □ □ □ □   □ □ □ □

8. A B C D   18. A B C D
    □ □ □ □   □ □ □ □

9. A B C D   19. A B C D
    □ □ □ □   □ □ □ □

10. A B C D   20. A B C D
    □ □ □ □   □ □ □ □

Name _____

	A	B	C	D	IF WRONG, ASSIGN:		A	B	C	D	IF WRONG, ASSIGN:
1.	☐	☐	☐	■	1	11.	☐	■	☐	☐	11
2.	☐	☐	■	☐	2	12.	■	☐	☐	☐	12
3.	■	☐	☐	☐	3	13.	■	☐	☐	☐	13
4.	☐	■	☐	☐	4	14.	☐	☐	■	☐	15
5.	☐	☐	■	☐	5	15.	☐	☐	☐	■	14, 4
6.	☐	■	☐	☐	6	16.	☐	☐	■	☐	16, 4, 5
7.	■	☐	☐	☐	7	17.	☐	■	☐	☐	17, 4, 5
8.	■	☐	☐	☐	8	18.	☐	☐	■	☐	18, 4, 5
9.	☐	☐	☐	■	9, 4	19.	■	☐	☐	☐	19, 4, 5
10.	☐	☐	■	☐	10, 4	20.	☐	☐	■	☐	20

Fractions
Module Record Sheet

Name _____

OBJECTIVE: Use addition, subtraction, multiplication, or division to find the
correct answer for any problem with fractions.

SAMPLE TEST ITEMS:

1. $\frac{3}{4} \times \frac{9}{7} =$ a) $\frac{27}{28}$ c) $\frac{21}{36}$

                                      b) $\frac{12}{11}$ d) $\frac{3}{7}$

             a   b   c   d
             ■   □   □   □

2. $2\frac{1}{2} \div 1\frac{1}{3} =$ a) $1\frac{1}{6}$ c) $1\frac{7}{8}$

                                        b) $3\frac{2}{3}$ d) $3\frac{5}{6}$

             a   b   c   d
             □   □   ■   □

INTRODUCTION TO FRACTIONS:

Fractions are pieces of whole numbers. Sometimes they are combined with
whole numbers to make "mixed numbers". To work with fractions, you need to be
able to work correctly with whole numbers. If you cannot add, subtract, multiply,
and divide whole numbers, you should study the Whole Numbers Module before trying
to learn about fractions.

These activity sheets will show you how to add, subtract, multiply, and
divide fractions. Work through all the activity sheets that have been circled
on the back of this page. You can check your own work using the check sheets
your teacher has shown you. If you have any questions about fractions, ask your
teacher. When you are all through with all the activity sheets and are sure you
understand all the rules for fractions, ask to take the Fractions Review.

Fractions
Module Record Sheet   Name _____

ACTIVITY SHEETS (Do those that are circled)

1.   What Is a Fraction?   1A   1B

2.   Types of Fractions   2A   2B

3.   Changing Mixed Numbers to Fractions   3A   3B

4.   Reducing Proper Fractions   4A   4B

5.   Reducing Improper Fractions   5A   5B

6.   Finding Common Denominators   6A   6B

7.   Adding Fractions with Common Denominators   7A   7B

8.   Adding Fractions with Different Denominators   8A   8B

9.   Adding Mixed Numbers   9A   9B

10. Subtracting Fractions with Common Denominators   10A   10B

11. Subtracting Fractions with Different Denominators   11A   11B

12. Subtracting Mixed Numbers   12A   12B

13. Cancelling   13A   13B

14. Multiplying Fractions Times Fractions   14A   14B

15. Multiplying Whole Numbers Times Fractions   15A   15B

16. Multiplying Mixed Numbers   16A   16B

17. Dividing Fractions by Fractions   17A   17B

18. Dividing Whole Numbers by Fractions and
     Fractions by Whole Numbers   18A   18B

19. Dividing Mixed Numbers by Mixed Numbers   19A   19B

20. Converting Fractions to Decimals   20A   20B

In this lesson you will learn what fractions are. You will learn about numerators and denominators of fractions.

A fraction is a piece of something larger. For instance, you might be a fraction of a fire team because you are one of six men who belong to that whole group. You can say you are one of six men on the fire team, or you can say you are $\frac{1}{6}$ of the fire team. They mean the same thing. The number $\frac{1}{6}$ is a fraction.

A fraction is made up of a top number, called the numerator, and a bottom number, called the denominator.

$$\frac{1}{6} \quad \begin{array}{l} \longleftarrow \text{numerator} \\ \longleftarrow \text{denominator} \end{array}$$

The denominator tells how many pieces there are in whatever you are talking about.

For instance, if you are 1 of a fire team, that means there are 6 men in the whole fire team.
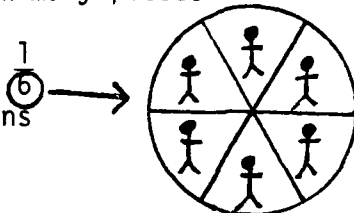
6 men in the whole fire team

The numerator tells how many of the pieces (or men or whatever) you have.

If you are $\frac{1}{6}$ of the fire team, that means you are one of six men in the whole fire team.

$\frac{1}{6}$ This means you have one of the six pieces out of the whole.
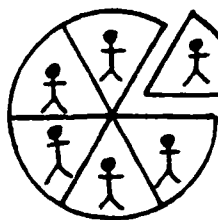
$\frac{1}{6}$ or one of the six pieces, (or men on the fire team)

Anything can be broken up into any number of equal-sized pieces. Then you can take out some of those pieces to make fractions. To make the fraction, you count the total number of pieces there are and put that in the denominator. Now you count the pieces you are taking out and put that in the numerator. Now you have your own, custom fraction.

Fractions (Continued)
Activity Sheet 1A
What is a Fraction?   Name _____

Look at this example:

AMMO	AMMO	AMMO
AMMO	AMMO	AMMO
AMMO	AMMO	AMMO
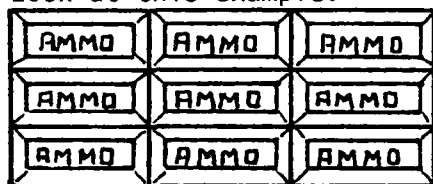
This is a stack of ammo cases.
There are 9 cases in the stack.
If you take out <u>one</u> case, then
what part of the stack do you have?

Remember, the <u>denominator</u>
is the number of pieces in
the whole. It is the number
of cases in the stack.
It equals <u>9</u>. ─────────────────────────➤ $\frac{\square}{9}$

The <u>numerator</u> is the number
of pieces, or the number of
ammo cases, you took out of
the stack. It equals <u>1</u>. ──────➤ $\frac{1}{9}$

So your fraction is $\frac{1}{9}$. You took $\frac{1}{9}$ of the ammo cases out of the stack.

Instructions:

   Look at the pictures below. Decide what <u>fraction</u> of the pieces are being
taken away. Write down the fraction on the short line to the right of the picture.

Example:
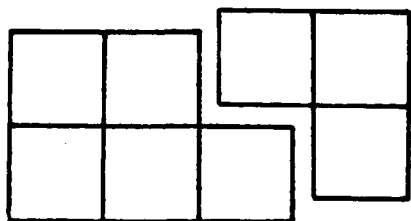
[image of squares with arrow] ──➤ $\frac{3}{8}$
_____
(because there are 8
 pieces total, and you
 are taking away 3.)

                                                          ANSWERS

1. [tents with arrow]   What fraction of
                                tents were taken away?   1. _____

2. [squares with arrow]   2. _____

Fractions (Continued)
Activity Sheet 1A
What is a Fraction?   Name _____

3.

3. _____

4.

4. _____

5.
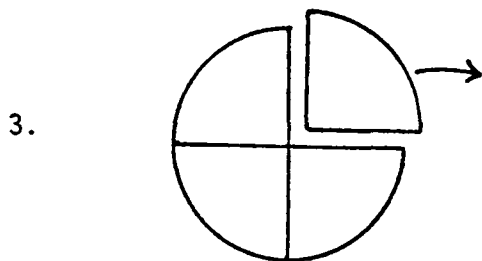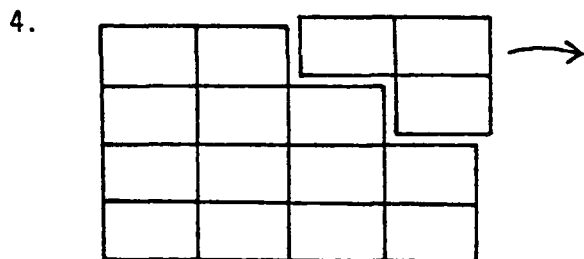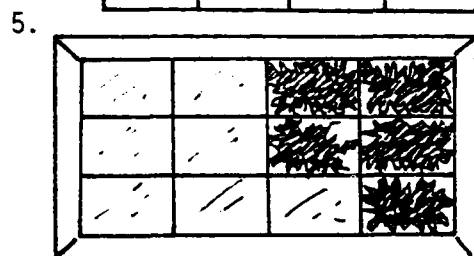
What fraction of
window panes are
broken?

5. _____

6.
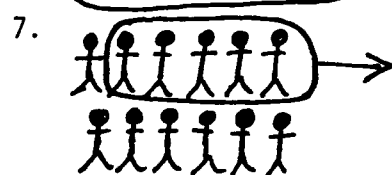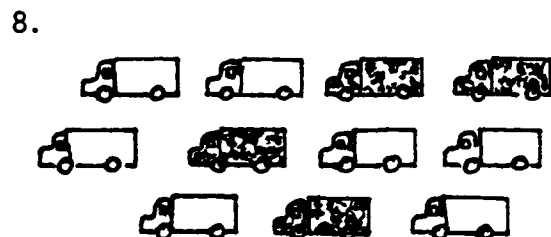
| PM 21-7 | FM 21-7 | FM 21-7 | FM 21-7 |

| FM 21-7 | FM 21-7 | FM 21-7 |

6. _____

7.

What fraction got
volunteered for
K.P.?

7. _____

8.

What fraction of trucks
are camouflage painted?

8. _____

9.

What fraction of these
rounds are tracers
(marked with a T)?

9. _____

367

Name _____

10.
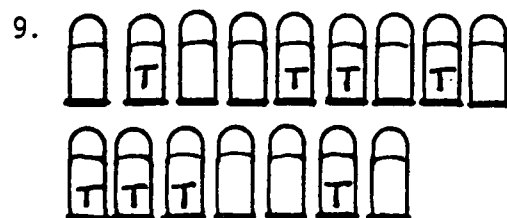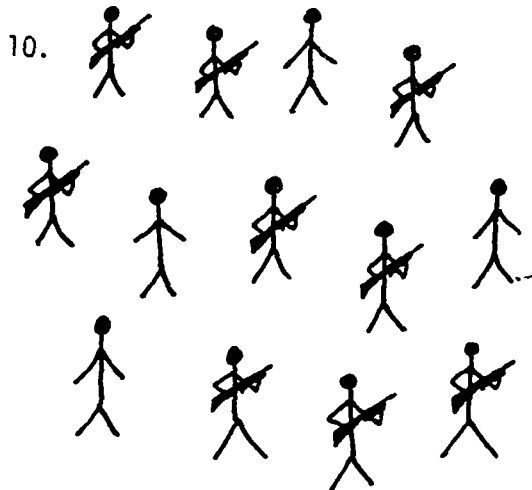
What fraction of the
men are carrying rifles?   10. _____

Fractions
Activity Sheet 2A
Types of Fractions   Name _____

In this activity you will learn to recognize the three different types of fractions: (1) proper fractions, (2) improper fractions, and (3) mixed numbers.

(1) <u>Proper fractions</u> are the most common. The way you can tell them is the <u>numerator</u> (top number) is <u>always smaller</u> than the <u>denominator</u> (bottom number).

Examples: $\frac{1}{6}$, $\frac{1}{2}$, $\frac{1}{3}$, $\frac{4}{9}$, $\frac{112}{113}$.

(2) <u>Improper fractions</u> are just the opposite of proper fractions. The way you can tell improper fractions is that the <u>numerator</u> is <u>always larger</u> than the <u>denominator</u>.

Examples: $\frac{3}{2}$, $\frac{5}{1}$, $\frac{7}{6}$, $\frac{113}{112}$, $\frac{14}{8}$.

(3) <u>Mixed numbers</u> are made up of a whole number and a fraction. The fraction part can be either proper or improper.

Examples: $2\frac{1}{3}$, $3\frac{1}{2}$, $7\frac{7}{6}$, $4\frac{3}{4}$, $189\frac{112}{115}$.

Now, see if you can pick out each type of fraction on the following problem sheet.

Instructions: Look at each of these fractions. Then mark whether it is (a) proper, (b) improper, or (c) mixed.

		Proper	Improper	Mixed
Example:	$\frac{2}{9}$	■	☐	☐
	$2\frac{3}{4}$	☐	☐	■

Name _____

		Proper	Improper	Mixed				Proper	Improper	Mixed
1.	$\frac{1}{2}$	☐	☐	☐	11.	$\frac{8}{5}$	☐	☐	☐
2.	$\frac{2}{3}$	☐	☐	☐	12.	$7\frac{9}{10}$	☐	☐	☐
3.	$\frac{5}{6}$	☐	☐	☐	13.	$\frac{14}{8}$	☐	☐	☐
4.	$\frac{12}{9}$	☐	☐	☐	14.	$\frac{10}{11}$	☐	☐	☐
5.	$2\frac{1}{3}$	☐	☐	☐	15.	$\frac{11}{10}$	☐	☐	☐
6.	$\frac{7}{3}$	☐	☐	☐	16.	$\frac{3}{4}$	☐	☐	☐
7.	$\frac{3}{7}$	☐	☐	☐	17.	$\frac{9}{21}$	☐	☐	☐
8.	$\frac{4}{11}$	☐	☐	☐	18.	$17\frac{4}{5}$	☐	☐	☐
9.	$2\frac{5}{8}$	☐	☐	☐	19.	$\frac{16}{33}$	☐	☐	☐
10.	$\frac{5}{8}$	☐	☐	☐	20	$\frac{93}{92}$	☐	☐	☐

You remember that there are two kinds of fractions. "Proper" fractions are fractions where the top number (numerator) is <u>smaller</u> than the bottom number (denominator).

$$\frac{1}{4} \qquad \frac{2}{3} \qquad \frac{8}{17}$$

"Improper" fractions are fractions where the top number is <u>larger</u> than the bottom number.

$$\frac{8}{5} \qquad \frac{19}{13} \qquad \frac{6}{2}$$

You also remember that a <u>mixed number</u> is made up of a whole number and a fraction.

$$1\frac{7}{8} \qquad 14\frac{2}{3} \qquad 8\frac{9}{16}$$

If you have mixed numbers that you want to add, subtract, multiply, or divide, it is often easier to do the problem if you change the mixed number to an <u>improper fraction</u>.   Changing mixed numbers into improper fractions is easy.

First you multiply the bottom
number in the fraction times
the whole number. $6\frac{2}{3}$

<u>Example</u>

$6\frac{2}{3}$

$6 \times 3 = 18$

Then you add the result (in
this case 18) to the top
number of the fraction.

$$\frac{18 + 2 = 20}{3}$$

Now you have an improper fraction
instead of a mixed number.

$$\frac{20}{3}$$

Instructions: Change these mixed numbers to improper fractions. (1) Multiply the denominator of the fraction times the whole number. (2) Add the result to the numerator of the fraction.

Examples: $2\frac{1}{3}$ $2 \times 3 = 6$ $\frac{6 + 1}{3} = \frac{7}{3}$

$9\frac{3}{8}$ $9 \times 8 = 72$ $\frac{73 + 3}{8} = \frac{75}{8}$

Fractions (Continued)
Activity Sheet 3A
Changing Mixed Numbers to Fractions

1. $5\frac{2}{3}$ =

2. $3\frac{5}{6}$ =

3. $4\frac{1}{8}$ =

4. $1\frac{6}{10}$ =

5. $2\frac{5}{9}$ =

6. $5\frac{3}{4}$ =

7. $7\frac{3}{8}$ =

8. $3\frac{1}{9}$ =

9. $4\frac{3}{11}$ =

10. $8\frac{5}{8}$ =

11. $6\frac{3}{4}$ =

12. $8\frac{1}{7}$ =

13. $19\frac{2}{3}$ =

14. $11\frac{1}{2}$ =

15. $57\frac{3}{4}$ =

Fractions
Activity Sheet 4A
Reducing Proper Fractions   Name_____

In this lesson you will learn to reduce fractions. You do this by
dividing a number into the numerator (top number) and denominator (bottom number)
of a fraction. This produces a fraction that is in its simplest form.

Reducing proper fractions takes some judgment. You start with 2 and try
numbers (2, 3, 4, 5, etc.) until you find a number that will divide into both
the numerator and denominator evenly. You keep doing that until you can't do
it any more. At that point the fraction is reduced.

Examples:

1. $\dfrac{5}{10}$ $\dfrac{5 \div 5}{10 \div 5} = \dfrac{1}{2}$ because 5 ÷ 5 = 1 and 10 ÷ 5 = 2

2. $\dfrac{5}{50}$ $\dfrac{5 \div 5}{50 \div 5} = \dfrac{1}{10}$

3. $\dfrac{40}{200}$ $\dfrac{40 \div 4}{200 \div 4} = \dfrac{10}{50}$ $\dfrac{10 \div 5}{50 \div 5} = \dfrac{2}{10}$ $\dfrac{2 \div 2}{10 \div 2} = \dfrac{1}{5}$

You may have to divide several times until you can't divide any more numbers
into both halves of the fraction.

Instructions: Reduce these fractions. Write out all of your steps.

1. $\dfrac{6}{12}$ =   4. $\dfrac{9}{27}$ =

2. $\dfrac{15}{225}$ =   5. $\dfrac{18}{27}$ =

3. $\dfrac{14}{42}$ =   6. $\dfrac{14}{28}$ =

Fractions
Activity Sheet 4A, Continued
Réducing Proper Fractions   Name_____

7. $\frac{8}{28}$ =   15. $\frac{16}{23}$ =

8. $\frac{22}{46}$ =   16. $\frac{18}{30}$ =

9. $\frac{30}{36}$ =   17. $\frac{13}{39}$ =

10. $\frac{21}{24}$ =   18. $\frac{7}{49}$ =

11. $\frac{32}{38}$ =   19. $\frac{18}{22}$ =

12. $\frac{5}{50}$ =   20. $\frac{8}{72}$ =

13. $\frac{9}{63}$ =

14. $\frac{8}{56}$ =

Name_____

Reducing improper fractions is just division. To reduce an improper fraction, you divide the denominator $\searrow \frac{10}{5}$ into the numerator $\nearrow \frac{10}{5}$.

It is easiest if you convert the problem into the $\sqrt{}$ form. Then divide as you would for any division problem.

Examples: $\frac{10}{5}$ = $5\overline{)10}$ = $5\overline{)\overset{2}{10}}$ = 2

$\frac{26}{5}$ = $5\overline{)26}$ = $5\overline{)\underset{\underset{\overline{1}}{25}}{\overset{5\ \frac{1}{5}}{26}}}$

$\frac{53}{12}$ = $12\overline{)53}$ $\qquad 12\overline{)\underset{\underset{\overline{5}}{48}}{\overset{4\ \frac{5}{12}}{53}}}$

Instructions: Convert the fraction ($\frac{10}{5}$) form to the division ($5\overline{)10}$) form, then divide. When you have your answer, choose the letter of the correct answer--A, B, C, or D--from those listed. Indicate that letter on your answer sheet by carefully filling in the square that contains that letter. You may have to reduce the fraction part of the answer, too. (See Activity Sheet 4A.)

1. $\frac{40}{5}$ =
   A) 4   C) 10
   B) 8   D) 20

2. $\frac{21}{13}$ =
   A) $1\frac{4}{5}$ C) $1\frac{8}{13}$
   B) $2\frac{8}{13}$ D) $2\frac{4}{5}$

3. $\frac{30}{6}$ =
   A) 15   C) 20
   B) 6   D) 5

4. $\frac{10}{2}$ =
   A) 6   C) 7
   B) 5   D) 4

5. $\frac{61}{8}$ =
   A) $7\frac{5}{8}$ C) $7\frac{3}{4}$
   B) $8\frac{5}{8}$ D) $8\frac{3}{4}$

6. $\frac{42}{6}$ =
   A) 4   C) 6
   B) 5   D) 7

7. $\frac{26}{4}$ =
   A) $6\frac{1}{4}$ C) $6\frac{1}{2}$
   B) $6\frac{3}{4}$ D) $7\frac{1}{2}$

8. $\frac{27}{3}$ =
   A) 6   C) 8
   B) 7   D) 9

375

Name_____

9. $\frac{36}{7}$ =

A) $7\frac{1}{7}$ C) $5\frac{1}{7}$

B) $6\frac{1}{7}$ D) $4\frac{1}{7}$

10. $\frac{60}{5}$ =

A) 11   C) 13

B) 12   D) 14

11. $\frac{41}{6}$ =

A) $5\frac{5}{6}$ C) $6\frac{2}{3}$

B) $6\frac{5}{6}$ D) $7\frac{1}{6}$

12. $\frac{81}{8}$ =

A) $9\frac{7}{8}$ C) $10\frac{1}{4}$

B) $10\frac{1}{8}$ D) $10\frac{1}{2}$

13. $\frac{61}{4}$ =

A) $14\frac{1}{4}$ C) $15\frac{1}{4}$

B) $14\frac{1}{2}$ D) $15\frac{1}{2}$

14. $\frac{72}{8}$ =

A) 7   C) 9

B) 8   D) 10

15. $\frac{47}{5}$ =

A) $8\frac{4}{5}$ C) $9\frac{2}{5}$

B) $9\frac{1}{5}$ D) $9\frac{3}{5}$

16. $\frac{84}{3}$ =

A) 26   C) 27

B) 28   D) 29

17. $\frac{52}{7}$ =

A) $7\frac{2}{7}$ C) $7\frac{4}{7}$

B) $7\frac{3}{7}$ D) $7\frac{5}{7}$

18. $\frac{94}{6}$ =

A) $15\frac{1}{2}$ C) $15\frac{3}{4}$

B) $15\frac{2}{3}$ D) $16\frac{2}{3}$

19. $\frac{134}{12}$ =

A) $11\frac{4}{12}$ C) $11\frac{3}{12}$

B) $12\frac{1}{12}$ D) $11\frac{1}{6}$

20. $\frac{58}{7}$ =

A) $7\frac{11}{7}$ C) $8\frac{11}{7}$

B) $8\frac{2}{7}$ D) $7\frac{2}{7}$

Fractions
Activity Sheet 5A, Continued
Reducing Improper Fractions

Name_____

1. [A] [B] [C] [D]   11. [A] [B] [C] [D]

2. [A] [B] [C] [D]   12. [A] [B] [C] [D]

3. [A] [B] [C] [D]   13. [A] [B] [C] [D]

4. [A] [B] [C] [D]   14. [A] [B] [C] [D]

5. [A] [B] [C] [D]   15. [A] [B] [C] [D]

6. [A] [B] [C] [D]   16. [A] [B] [C] [D]

7. [A] [B] [C] [D]   17. [A] [B] [C] [D]

8. [A] [B] [C] [D]   18. [A] [B] [C] [D]

9. [A] [B] [C] [D]   19. [A] [B] [C] [D]

10. [A] [B] [C] [D]   20. [A] [B] [C] [D]

Fractions
Activity Sheet 6A
Finding Common Denominators

Name_____

In a fraction there are two halves, the numerator $\longrightarrow \frac{5}{7}$, and the denominator $\longrightarrow \frac{5}{7}$. Whenever it is necessary to add or subtract with fractions that have different denominators, you will need to make the denominators the same before you can solve the problem.

One way that always works is to multiply the top and bottom of each fraction times the denominator of the other fraction.

Look at this problem: $\frac{2}{3} + \frac{3}{4} = ?$

First, multiply the denominator of the second fraction times both halves of the first fraction. Then, multiply the denominator of the first fraction times both halves of the second fraction.

$$\frac{2}{3} \rightleftarrows \frac{3}{4}$$

$$\frac{2 \times 4 = 8}{3 \times 4 = 12} \quad + \quad \frac{3 \times 3 = 9}{3 \times 4 = 12}$$

$$\downarrow \qquad\qquad \downarrow$$

Your new problem looks like this.
$$\frac{8}{12} \quad + \quad \frac{9}{12}$$

Now it is easy to add the fractions up, because they have a common denominator. Both fractions have a denominator of 12.

$$\frac{8}{12} + \frac{9}{12} = \frac{8 + 9}{12} = \frac{17}{12}$$

Instructions: Find the common denominators for each of these problems. Write the new problem with the common denominators. You don't need to solve the problems.

Example:
$$\frac{3}{8} \quad + \quad \frac{6}{7}$$

$$\frac{3 \times 7 = 21}{8 \times 7 = 56} \quad + \quad \frac{8 \times 6 = 48}{8 \times 7 = 56}$$

$$\downarrow \qquad\qquad \downarrow$$

$$\frac{21}{56} \quad + \quad \frac{48}{56}$$

Remember to show your work!

Fractions
Activity Sheet 6A, Continued
Finding Common Denominators

Name _____

1. $\frac{2}{3} + \frac{1}{4}$

2. $\frac{1}{6} + \frac{1}{7}$

3. $\frac{1}{5} + \frac{3}{7}$

4. $\frac{1}{2} + \frac{1}{3}$

5. $\frac{1}{10} + \frac{1}{2}$

6. $\frac{1}{8} + \frac{1}{6}$

7. $\frac{4}{7} - \frac{3}{11}$

8. $\frac{8}{11} - \frac{2}{3}$

9. $\frac{5}{6} + \frac{6}{7}$

10. $\frac{3}{4} - \frac{3}{5}$

11. $\frac{3}{8} - \frac{2}{9}$

12. $\frac{5}{7} - \frac{3}{5}$

13. $\frac{7}{8} + \frac{4}{5}$

14. $\frac{2}{9} + \frac{7}{11}$

15. $\frac{4}{5} + \frac{5}{4}$

Fractions
Activity Sheet 6A, Continued
Finding Common Denominators

16. $\frac{4}{7}$ + $\frac{6}{13}$

17. $\frac{1}{3}$ + $\frac{7}{8}$

18. $\frac{4}{9}$ + $\frac{5}{11}$

19. $\frac{7}{20}$ + $\frac{2}{5}$

20. $\frac{7}{9}$ + $\frac{3}{8}$

Fractions
Activity Sheet 7A   Name _____
Adding Fractions With Common Denominators

In this lesson you will learn to add fractions that have the same bottom number (denominator).

Adding fractions with common denominators is very easy. All you have to do is add the top numbers together to get the new numerator (top number). The denominator of the answer is the same as the denominator of the fractions in the problem.

Adding top numbers

Examples:

$$\frac{①}{3} + \frac{②}{3} = \frac{3}{3} = 1$$

Using same bottom number

Remember to reduce the answer fraction like you did in Activity Sheets 4A and 5A.

$$\frac{1}{6} + \frac{4}{6} = \frac{5}{6}$$

$$\frac{3}{8} + \frac{7}{8} = \frac{10}{8} = 1\frac{2}{8} = 1\frac{1}{4}$$

$$\frac{16}{42} + \frac{23}{42} = \frac{39}{42} = \frac{13}{14}$$

Instructions: Add up these fractions and reduce the answer to its simplest form. If you have trouble with reducing the answer, look at Activity Sheets 4A and 5A.

1. $\frac{12}{13} + \frac{9}{13} =$ 3. $\frac{2}{9} + \frac{7}{9} =$ 5. $\frac{9}{23} + \frac{16}{23} =$

2. $\frac{3}{8} + \frac{5}{8} =$ 4. $\frac{4}{7} + \frac{3}{7} =$ 6. $\frac{2}{5} + \frac{4}{5} =$

Fractions
Activity Sheet 7A, Continued
Adding Fractions with Common Denominators   Name_____

7. $\frac{5}{10} + \frac{4}{10} =$ 12. $\frac{25}{83} + \frac{78}{83} =$ 17. $\frac{17}{25} + \frac{11}{25} =$

8. $\frac{9}{11} + \frac{5}{11} =$ 13. $\frac{16}{19} + \frac{12}{19} =$ 18. $\frac{9}{42} + \frac{5}{42} =$

9. $\frac{14}{15} + \frac{13}{15} =$ 14. $\frac{27}{47} + \frac{41}{47} =$ 19. $\frac{16}{53} + \frac{9}{53} =$

10. $\frac{12}{17} + \frac{9}{17} =$ 15. $\frac{42}{51} + \frac{25}{51} =$ 20. $\frac{65}{100} + \frac{35}{100} =$

11. $\frac{21}{75} + \frac{35}{75} =$ 16. $\frac{7}{26} + \frac{5}{26} =$

This activity will teach you to add fractions together that have different bottom numbers (denominators). The first and most important step is to find the common denominator for each problem. $\quad \frac{3}{4} + \frac{1}{2} =$

As you learned in Fraction Activity Sheet 6A, you multiply the denominator of each fraction times the denominator and numerator of the other fraction.

$$\frac{3 \times 2}{4 \times 2} + \frac{1 \times 4}{2 \times 4} =$$

$$\frac{6}{8} + \frac{4}{8} =$$

Next you add the numerators together (as in Fraction Activity Sheet 7A). This gives you the numerator of the answer. The denominator of the answer is the common denominator.

$$\frac{6}{8} + \frac{4}{8} = \frac{10}{8}$$

$\frac{10}{8}$ can be reduced by dividing 8 into 10.

$$8 \overline{\smash{/\,}10} \begin{array}{c} 1\frac{2}{8} \\ \end{array} \qquad \frac{8}{2}$$

Then $1\frac{2}{8}$ can be reduced to $1\frac{1}{4}$.

Instructions: Add the fractions in each problem together and reduce the answers. Remember to find the common denominators first.

Examples:

1. $\quad \frac{1}{2} + \frac{1}{3} =$

$$\frac{1 \times 3}{2 \times 3} + \frac{1 \times 2}{3 \times 2} = \frac{3}{6} + \frac{2}{6} =$$

$$\frac{3}{6} + \frac{2}{6} = \frac{5}{6}$$

2. $\quad \frac{1}{4} + \frac{1}{6} =$

$$\frac{1 \times 6}{4 \times 6} + \frac{1 \times 4}{6 \times 4} =$$

$$\frac{6}{24} + \frac{4}{24} = \frac{10}{24} \longrightarrow \frac{10}{24} \div \frac{2}{2} = \frac{5}{12}$$

Fractions
Activity Sheet 8A, Continued
Adding Fractions with
    Different Denominators

Name_____

1. $\frac{1}{2} + \frac{1}{1} =$

2. $\frac{1}{2} + \frac{1}{4} =$

3. $\frac{1}{3} + \frac{1}{4} =$

4. $\frac{1}{3} + \frac{1}{5} =$

5. $\frac{1}{3} + \frac{1}{6} =$

6. $\frac{1}{3} + \frac{1}{7} =$

7. $\frac{1}{4} + \frac{1}{7} =$

8. $\frac{1}{5} + \frac{1}{4} =$

9. $\frac{1}{6} + \frac{1}{2} =$

10. $\frac{1}{4} + \frac{1}{9} =$

Fractions
Activity Sheet 8A, Continued
Adding Fractions with
    Different Denominators

Name_____

11. $\frac{3}{5} + \frac{1}{3} =$

16. $\frac{3}{5} + \frac{8}{9} =$

12. $\frac{3}{4} + \frac{1}{8} =$

17. $\frac{1}{3} + \frac{2}{5} =$

13. $\frac{3}{8} + \frac{2}{3} =$

18. $\frac{3}{7} + \frac{1}{8} =$

14. $\frac{5}{6} + \frac{6}{5} =$

19. $\frac{2}{9} + \frac{3}{7} =$

15. $\frac{4}{9} + \frac{2}{7} =$

20. $\frac{7}{8} + \frac{8}{9} =$

Name _____

During this activity you will learn how to add mixed numbers together. A mixed number is a whole number followed by a fraction -- $5\frac{1}{4}$.

The easiest way to add mixed numbers is to split up each mixed number into the whole number and the fraction.

$$5\frac{1}{4} \qquad 5 \qquad \frac{1}{4}$$

$$+ 4\frac{2}{3} \qquad + 4 \qquad \frac{2}{3}$$

Then add the two sets separately. Add the fractions, then the whole numbers.

$$5 \qquad\qquad \frac{1\times 3}{4\times 3} + \frac{2\times 4}{3\times 4} =$$

$$+ 4$$

$$⑨$$

$$\frac{3}{12} + \frac{8}{12} = \boxed{\frac{11}{12}}$$

$$9 + \frac{11}{12}$$

$$= 9\frac{11}{12}$$

Then re-combine the two sets of answers back into a mixed number for the overall answer, as shown above.

Sometimes, when you add up the fraction half and reduce it, you find out your answer is greater than 1. Look at this problem:

$$6\frac{3}{4} \qquad 6 \qquad + \quad \frac{3}{4}$$

$$+ 1\frac{1}{3} \qquad + 1 \qquad + \frac{1}{3}$$

$$⑦ \qquad \frac{3}{4} + \frac{1}{3} = \frac{3\times 3}{4\times 3} + \frac{4\times 1}{4\times 3} = \frac{9}{12} + \frac{4}{12} = \frac{13}{12} = \boxed{1\frac{1}{12}}$$

$$7 + 1\frac{1}{12}$$

You can see that your fraction answer is greater than 1. But it is easy to add to the other part of your answer.

$$7 + 1\frac{1}{12} = 8\frac{1}{12} \qquad \text{because } 7 + 1 = 8.$$

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Instructions: Add up these problems. Add the fractions first. Then, add the whole numbers. You may have to find common denominators. Then you reduce the fractions answer to its simplest terms. Last, add the whole numbers answer and the fractions answer together.

Example: $2\frac{3}{8} + 4\frac{6}{7} =$

$$2 + 4 = \textcircled{6} \qquad \frac{3}{8} + \frac{6}{7} = \frac{3 \times 7}{8 \times 7} + \frac{8 \times 6}{8 \times 7} = \frac{21}{56} + \frac{48}{56} = \frac{69}{56} = \boxed{1\frac{13}{56}}$$

$$6 + 1\frac{13}{56} = 7\frac{13}{56}$$

1. $1\frac{1}{2} + 1\frac{1}{3} =$

2. $1\frac{1}{4} + 1\frac{1}{3} =$

3. $1\frac{3}{8} + 1\frac{1}{6} =$

4. $3\frac{5}{7} + 4\frac{1}{5} =$

5. $1\frac{2}{3} + 1\frac{3}{4} =$

6. $1\frac{3}{5} + 1\frac{7}{8} =$

7. $4\frac{2}{9} + 7\frac{5}{8} =$

8. $3\frac{1}{11} + 5\frac{1}{7} =$

Name _____

9. $17\frac{3}{7} + 2\frac{9}{10} =$

15. $10\frac{2}{7} + 12\frac{1}{2} =$

10. $6\frac{7}{10} + 9\frac{13}{14} =$

16. $14\frac{2}{5} + 18\frac{7}{9} =$

11. $4\frac{2}{5} + 5\frac{5}{6} =$

17. $22\frac{4}{11} + 7\frac{7}{10} =$

12. $8\frac{4}{9} + 8\frac{3}{4} =$

18. $15\frac{9}{10} + 19\frac{1}{4} =$

13. $7\frac{2}{3} + 5\frac{1}{5} =$

19. $27\frac{3}{5} + 55\frac{4}{7} =$

14. $11\frac{4}{5} + 6\frac{7}{11} =$

20. $138\frac{1}{3} + 116\frac{1}{8} =$

Fractions
Activity Sheet 10A   Name_____
Subtracting Fractions with Common Denominators

In this lesson you will learn to subtract fractions that have the same bottom number (denominator).

Subtracting fractions with common denominators (bottom numbers) is very easy. All you have to do is subtract the top numbers (numerators) of each fraction from each other to get the answer's numerator. To get the answer's denominator you just use the same-bottom number as the fractions in the problem.

Example: $\frac{2}{3} - \frac{1}{3} = \frac{2-1}{3} = \frac{1}{3}$

Subtracting top numbers $7 - 3 = 4$

$\frac{7}{8} - \frac{3}{8} = \frac{7-3}{8} = \frac{4}{8}$

Using the same bottom numbers

If your answer can be reduced, remember to reduce it.

$\frac{5}{6} - \frac{1}{6} = \frac{5-1}{6} = \frac{4}{6} = \frac{2}{3}$

Instructions: Do subtraction on the problems. If necessary, reduce the answer to its simplest form. If you have trouble reducing the answer, look at Fractions Activity Sheet 4A.

1. $\frac{4}{7} - \frac{3}{7} =$ 3. $\frac{5}{8} - \frac{3}{8} =$ 5. $\frac{5}{10} - \frac{4}{10} =$

2. $\frac{7}{9} - \frac{2}{9} =$ 4. $\frac{12}{13} - \frac{9}{13} =$ 6. $\frac{9}{11} - \frac{5}{11} =$

7. $\dfrac{4}{5} - \dfrac{2}{5} =$

12. $\dfrac{78}{213} - \dfrac{25}{213} =$

17. $\dfrac{117}{251} - \dfrac{110}{251} =$

8. $\dfrac{16}{23} - \dfrac{9}{23} =$

13. $\dfrac{42}{119} - \dfrac{25}{119} =$

18. $\dfrac{166}{753} - \dfrac{97}{753} =$

9. $\dfrac{12}{17} - \dfrac{9}{17} =$

14. $\dfrac{112}{193} - \dfrac{16}{193} =$

19. $\dfrac{192}{300} - \dfrac{74}{300} =$

10. $\dfrac{14}{15} - \dfrac{12}{15} =$

15. $\dfrac{83}{296} - \dfrac{44}{296} =$

20. $\dfrac{65}{100} - \dfrac{35}{100} =$

11. $\dfrac{35}{75} - \dfrac{21}{75} =$

16. $\dfrac{521}{842} - \dfrac{291}{842} =$

Name _____

This activity will teach you to subtract fractions that have different bottom numbers (denominators). The first and most important step is to find common denominators for each problem. If you don't know how to find common denominators, see Activity Sheet 6A.

When your fractions have common denominators, then (as described in Fraction Activity Sheet 10A), you subtract the numerators to get the answer's numerator. For the answer's denominator, use the same denominator as the rest of the fractions in the problem. For example:

$$\frac{3}{6} - \frac{2}{6} = \frac{3-2}{6} = \frac{1}{6}$$

Now, in some cases you will need to reduce the answer. If you don't know how to reduce fractions, see Activity Sheet 4A.

Instructions: Subtract the fractions in each problem from each other and reduce the answers where necessary. Remember to find the common denominators first.

Examples:

1. $\frac{1}{4} - \frac{1}{8} = \frac{1 \times 8}{4 \times 8} - \frac{1 \times 4}{8 \times 4} = \frac{8}{32} - \frac{4}{32} = \frac{4}{32} = \frac{1}{8}$

2. $\frac{1}{5} - \frac{1}{6} = \frac{1 \times 6}{5 \times 6} - \frac{1 \times 5}{6 \times 5} = \frac{6}{30} - \frac{5}{30} = \frac{1}{30}$

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1. $\frac{1}{1} - \frac{1}{2} =$ 3. $\frac{1}{3} - \frac{1}{4} =$

2. $\frac{1}{2} - \frac{1}{4} =$ 4. $\frac{1}{3} - \frac{1}{5} =$

Name_____

5. $\frac{1}{3} - \frac{1}{6} =$

10. $\frac{1}{4} - \frac{1}{9} =$

6. $\frac{1}{3} - \frac{1}{7} =$

11. $\frac{3}{5} - \frac{1}{3} =$

7. $\frac{1}{4} - \frac{1}{7} =$

12. $\frac{3}{4} - \frac{1}{8} =$

8. $\frac{1}{4} - \frac{1}{5} =$

13. $\frac{2}{3} - \frac{3}{8} =$

9. $\frac{1}{2} - \frac{1}{6} =$

14. $\frac{6}{5} - \frac{5}{6} =$

Fractions
Activity Sheet 11A, Continued
Subtracting Fractions with
    Different Denominators

Name _____

15. $\frac{4}{9} - \frac{2}{7} =$

19. $\frac{7}{8} - \frac{6}{7} =$

16. $\frac{8}{9} - \frac{3}{5} =$

20. $\frac{9}{10} - \frac{8}{9} =$

17. $\frac{2}{5} - \frac{1}{3} =$

18. $\frac{3}{7} - \frac{1}{6} =$

During this activity you will learn how to subtract mixed numbers.

A mixed number is a whole number followed by a fraction, such as $7\frac{3}{8}$.

Here is a step by step example of how to subtract mixed numbers.

Example: $6\frac{2}{3}$

$-1\frac{1}{2}$

1. Find common denominators $6\frac{2\times2}{3\times2}$ $6\frac{4}{6}$
   for the fractions.
                                $-1\frac{1\times3}{2\times3}$ $-1\frac{3}{6}$

2. Now, just subtract $6\quad\frac{4}{6}$
   straight down. Sub-
   tract the 1 from the 6, $-1\quad\frac{3}{6}$
   and subtract the
   $\frac{3}{6}$ from the $\frac{4}{6}$. $5\quad\frac{1}{6}$

Now, here is an example of subtracting where the top fraction is <u>smaller</u> than the bottom fraction, so you have to <u>borrow</u>.

Example: $8\frac{1}{4}$

$-4\frac{2}{3}$

1. Find common denominators $8\frac{1\times3}{4\times3}$ $8\frac{3}{12}$
   for the fractions.
                                $-4\frac{2\times4}{3\times4}$ $-4\frac{8}{12}$

2. Now let's remove $8\frac{3}{12}$ from $8+\frac{3}{12}$
   the problem temporarily.

   Borrow 1 from the 8 so that $7+1+\frac{3}{12}=$

   $\frac{3}{12}$ can be raised enough that $\frac{8}{12}$ $7+\frac{12}{12}+\frac{3}{12}=$
   can be subtracted from it. Change
   1 to $\frac{12}{12}$ so it can be added to $\frac{3}{12}$. $7+\frac{15}{12}$

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3. Now we will put the converted
    $8\frac{3}{12}$, which is now $7\frac{15}{12}$, back
    into the problem where it came
    from and subtract the same
    way we did in Activity Sheet 10A.

$$7\frac{15}{12}$$
$$-\ 4\frac{8}{12}$$
$$\overline{3\frac{7}{12}}$$

Instructions: Subtract these problems. Borrow <u>when necessary</u>. Reduce the
answer to the simplest form. Use scratch paper to do your work.

Example:

$$14\frac{3}{4}$$
$$-\ 12\frac{15}{16}$$

$$14\frac{3}{4} \times \frac{16}{16}$$
$$-\ 12\frac{15}{16} \times \frac{4}{4}$$

$$14\frac{48}{64}$$
$$-\ 12\frac{60}{64}$$

$$14\ +\ \frac{48}{64}$$

Borrow 1 from 14.

$$13\ +\ 1\ +\ \frac{48}{64}$$

Convert 1 to 64ths.

$$13\ +\ \frac{64}{64}\ +\ \frac{48}{64}$$

Add $\frac{64}{64} + \frac{48}{64}$

$$13\ \frac{112}{64}$$

$$13\frac{112}{64}$$
$$-\ 12\frac{60}{64}$$
$$\overline{1\frac{52}{64}}$$ Now reduce
                                               fraction

$$1\frac{52\div 2}{64\div 2}$$

$$1\frac{26\div 2}{32\div 2}$$ $$1\frac{13}{16}$$

The Answer

Fractions
Activity Sheet 12A, Continued
Subtracting Mixed Numbers

Name_____

1. $1\frac{2}{3}$

   $-1\frac{1}{2}$
   _____

2. $1\frac{3}{4}$

   $-1\frac{1}{3}$
   _____

3. $1\frac{5}{6}$

   $-1\frac{3}{8}$
   _____

4. $3\frac{1}{5}$

   $-2\frac{5}{7}$
   _____

5. $3\frac{2}{3}$

   $-1\frac{3}{4}$
   _____

6. $1\frac{7}{8} - 1\frac{3}{5} =$

7. $7\frac{5}{8}$

   $-4\frac{2}{9}$
   _____

8. $5\frac{1}{10}$

   $-3\frac{1}{11}$
   _____

9. $17\frac{3}{7} - 2\frac{9}{10} =$

10. $9\frac{13}{14} - 6\frac{7}{8} =$

11. $5\frac{5}{6} - 4\frac{2}{5} =$

12. $9\frac{4}{9} - 8\frac{3}{4} =$

13. $10\frac{2}{7}$

    $-9\frac{1}{2}$
    _____

14. $7 \frac{1}{5}$

  $- 5 \frac{2}{3}$
  _____

18. $11 \frac{4}{5}$

  $- 6 \frac{7}{11}$
  _____

15. $18 \frac{7}{9}$

  $- 14 \frac{2}{5}$
  _____

19. $55 \frac{4}{7} - 27 \frac{3}{5} =$

20. $138 \frac{1}{8} - 116 \frac{1}{3} =$

16. $22 \frac{7}{12}$

  $- 7 \frac{4}{11}$
  _____

17. $19 \frac{1}{4}$

  $- 15 \frac{9}{10}$
  _____

In this lesson you will learn <u>cancelling</u>. Cancelling is a way to make a complex or difficult problem simpler. <u>Cancelling only works with multiplication of fractions</u>. If you try cancelling on problems of addition, subtraction, or division of fractions, you will get the wrong answer.

Cancelling makes a problem simpler by <u>reducing</u> the numbers in the problem. In Activity Sheets 4A and 5A, you learned how to reduce fractions. You found a number that could be divided evenly into both the <u>numerator</u> and the <u>denominator</u>. Cancelling is like that, except you find a number that will divide evenly into the <u>numerator of one fraction</u> and the <u>denominator of the other fraction</u>.

For example, look at this problem:

$$\frac{6}{7} \times \frac{1}{4} = ?$$

To make the problem simpler, you find a number that will divide evenly into <u>one numerator</u> and <u>the other denominator</u>. Is there a number that will divide evenly into both the 6 and the 4?   Sure, there is. You can divide the number 2 evenly into both 6 and 4. So, do that.

$$\frac{6 \div 2}{7} \times \frac{1}{4 \div 2} = \frac{3}{7} \times \frac{1}{2}$$

Your new problem is

$$\frac{3}{7} \times \frac{1}{2} = ?$$

It is a much simpler problem.

Now, can you divide any number into both the 7 and the 1?

$$\frac{3}{7} \times \frac{1}{2}$$

No, you can't find a number to do that. So now your problem is at its simplest form.

Let's try another problem in cancelling.

$$\frac{9}{10} \times \frac{5}{6} = ?$$

What number will go evenly into both 9 and 6?

$$\frac{9}{10} \times \frac{5}{6} =$$

The number 3 will divide evenly into 9 and into 6.

Name _____

$$\frac{9 \div 3}{10} \times \frac{5}{6 \div 3} = \frac{3}{10} \times \frac{5}{2}$$ because $9 \div 3 = 3$ and $6 \div 3 = 2$.

Now, what number will divide evenly into both 10 and 5?

$$\frac{3}{10} \times \frac{5}{2}$$

The number 5 will divide evenly into 10 and into 5.

$$\frac{3}{10 \div 5} \times \frac{5 \div 5}{2} = \frac{3}{2} \times \frac{1}{2}$$ because $10 \div 5 = 2$ and $5 \div 5 = 1$.

Your new problem, $\frac{3}{2} \times \frac{1}{2}$, is much simpler.

Here is one more example of cancelling.

$$\frac{33}{72} \times \frac{6}{11} = ?$$

The numbers in this problem are <u>big</u> and <u>hard to use</u>. But you can make the problem simpler by cancelling.

$$\frac{33}{72} \times \frac{6}{11}$$

The number 11 will divide evenly into both 33 and 11.

$$\frac{33 \div 11 = 3}{72} \times \frac{6}{11 \div 11 = 1} = \frac{3}{72} \times \frac{6}{1}$$

$$\frac{3}{72} \times \frac{6}{1}$$

Now, the number 6 will divide evenly into both 72 and 6.

$$\frac{3}{72 \div 6 = 12} \times \frac{6 \div 6 = 1}{1} = \frac{3}{12} \times \frac{1}{1}$$

This is a much simpler problem.

Instructions: Do the problems below. <u>Cancel to make the problem as simple as possible.</u> YOU DO NOT HAVE TO SOLVE THE PROBLEM! JUST MAKE IT SIMPLE!

Example: $\frac{18}{25} \times \frac{10}{21} = $ $\frac{18}{25} \times \frac{10}{21}$

$$\frac{18 \div 3}{25 \div 5} \times \frac{10 \div 5}{21 \div 3}$$

because 3 goes into 18 and into 21, and 5 goes into 25 and into 10.

$$= \frac{6}{5} \times \frac{2}{7}$$

<u>Important</u>: If you use a scratch paper to help do the problems, keep the scratch paper so you can show it to the peer tutor and the teacher.

Fractions (Continued)
Activity Sheet 13A
Cancelling

Name _____

1. $\frac{3}{4} \times \frac{2}{9} =$

2. $\frac{4}{5} \times \frac{5}{8} =$

3. $\frac{2}{3} \times \frac{9}{10} =$

4. $\frac{3}{8} \times \frac{1}{36} =$

5. $\frac{1}{2} \times \frac{4}{7} =$

6. $\frac{6}{7} \times \frac{6}{14} =$

7. $\frac{9}{11} \times \frac{1}{18} =$

8. $\frac{13}{14} \times \frac{21}{169} =$

9. $\frac{25}{26} \times \frac{52}{625} =$

10. $\frac{6}{5} \times \frac{25}{36} =$

11. $\frac{4}{11} \times \frac{121}{16} =$

12. $\frac{15}{32} \times \frac{128}{75} =$

13. $\frac{45}{51} \times \frac{17}{9} =$

14. $\frac{23}{52} \times \frac{13}{161} =$

15. $\frac{46}{36} \times \frac{6}{10} =$

16. $\frac{12}{15} \times \frac{9}{16} =$

17. $\frac{13}{4} \times \frac{2}{39} =$

18. $\frac{14}{30} \times \frac{10}{28} =$

19. $\frac{25}{36} \times \frac{9}{50} =$

20. $\frac{21}{84} \times \frac{16}{27} =$

In this lesson you will learn how to multiply fractions times fractions.

$$\frac{1}{2} \times \frac{2}{3} = ?$$

You do this in two steps. First, multiply the numerators times each other; then, multiply the denominators times each other.

$$\frac{1}{2} \times \frac{2}{3} = \frac{1 \times 2}{2 \times 3} = \frac{2}{6} \qquad \text{Then reduce} \quad \frac{2 \div 2}{6 \div 2} = \frac{1}{3}$$

Multiplying the numerators and multiplying the denominators are two separate problems. They give you the new numerator and the new denominator.

Instructions: Multiply these problems and reduce the answers if necessary.
             Cancel wherever you can.

Examples:

(a) $\frac{3}{4} \times \frac{7}{8} = \frac{3 \times 7}{4 \times 8} = \frac{21}{32}$

(b) $\frac{3}{9} \times \frac{6}{7} = \frac{3 \times \cancel{6}^{2}}{\cancel{9}_{3} \times 7} = \frac{3 \times 2}{3 \times 7} = \frac{6}{21} = \frac{2}{7}$ (cancelled and reduced)

(c) $\frac{2}{5} \times \frac{3}{5} = \frac{2 \times 3}{5 \times 5} = \frac{6}{25}$

1. $\frac{1}{4} \times \frac{1}{5} =$

2. $\frac{1}{3} \times \frac{1}{3} =$

3. $\frac{1}{2} \times \frac{1}{2} =$

4. $\frac{1}{5} \times \frac{2}{3} =$

5. $\frac{3}{5} \times \frac{2}{9} =$

6. $\frac{1}{4} \times \frac{2}{10} =$

7. $\frac{2}{3} \times \frac{3}{8} =$

8. $\frac{5}{6} \times \frac{5}{7} =$

Fractions (Continued)
Activity Sheet 14A
Multiplying Fractions Times Fractions   Name _____

9. $\dfrac{2}{5}$ x $\dfrac{5}{8}$ =

15. $\dfrac{1}{8}$ x $\dfrac{1}{4}$ =

10. $\dfrac{3}{4}$ x $\dfrac{3}{10}$ =

16. $\dfrac{3}{6}$ x $\dfrac{4}{6}$ =

11. $\dfrac{2}{7}$ x $\dfrac{2}{9}$ =

17. $\dfrac{2}{3}$ x $\dfrac{3}{4}$ =

12. $\dfrac{5}{12}$ x $\dfrac{4}{15}$ =

18. $\dfrac{2}{8}$ x $\dfrac{5}{4}$ =

13. $\dfrac{3}{4}$ x $\dfrac{4}{5}$ =

19. $\dfrac{6}{9}$ x $\dfrac{7}{9}$ =

14. $\dfrac{5}{11}$ x $\dfrac{3}{10}$ =

20. $\dfrac{5}{14}$ x $\dfrac{6}{7}$ =

Name _____

In this lesson you will learn to multiply whole numbers times fractions.

For instance, $2 \times \frac{1}{3} = ?$

This is very simple. Remember that a whole number is the same as <u>a fraction with a denominator of 1.</u> So, just turn the whole number into a fraction, and multiply like you did in Activity Sheet 14A.

$$2 \times \frac{1}{3} = \frac{2}{1} \times \frac{1}{3} = \frac{2 \times 1}{1 \times 3} = \frac{2}{3}$$

Here are some other examples:

$$4 \times \frac{1}{5} = \frac{4}{1} \times \frac{1}{5} = \frac{4 \times 1}{1 \times 5} = \frac{4}{5} \qquad\qquad 5 \times \frac{2}{7} = \frac{5}{1} \times \frac{2}{7} = \frac{5 \times 2}{1 \times 7} = \frac{10}{7} = 1\frac{3}{7}$$

Notice that you can sometimes <u>reduce</u> your answer. To find out how to reduce fractions, see Activity Sheets 4A and 5A.

Instructions: Multiply the whole number times the fraction in each problem below. Reduce the answers if you need to. Cancel when you can.

Example: $7 \times \frac{3}{8} = \frac{7}{1} \times \frac{3}{8} = \frac{7 \times 3}{1 \times 8} = \frac{21}{8} = 2\frac{5}{8}$

---

1. $5 \times \frac{1}{5} =$

2. $7 \times \frac{1}{7} =$

3. $4 \times \frac{1}{4} =$

4. $6 \times \frac{6}{36} =$

5. $3 \times \frac{5}{15} =$

6. $2 \times \frac{12}{24} =$

Fractions (Continued)
Activity Sheet 15A
Multiplying Whole Numbers
     Times Fractions   Name _____

7. $9 \times \frac{14}{42} =$ 14. $11 \times \frac{8}{13} =$

8. $8 \times \frac{6}{24} =$ 15. $17 \times \frac{6}{51} =$

9. $10 \times \frac{30}{100} =$ 16. $21 \times \frac{17}{18} =$

10. $7 \times \frac{3}{10} =$ 17. $16 \times \frac{3}{14} =$

11. $5 \times \frac{6}{11} =$ 18. $5 \times \frac{3}{4} =$

12. $4 \times \frac{7}{9} =$ 19. $72 \times \frac{3}{18} =$

13. $6 \times \frac{4}{13} =$ 20. $112 \times \frac{16}{21} =$

This activity will teach you to multiply mixed numbers times each other.

$$2\frac{1}{3} \times 3\frac{1}{2} =$$

The trick here is to change the mixed numbers into fractions. You learned how to do that in Activity Sheet 3A.

Look at this problem:

$$2\frac{1}{3} \times 4\frac{1}{2} = ?$$

First, change the mixed numbers into fractions.

$$2\frac{1}{3} \times 4\frac{1}{2}$$
$$\downarrow \qquad \downarrow$$
$$\frac{7}{3} \times \frac{9}{2}$$

because 2 x 3 = 6 plus 1 = 7, and
4 x 2 = 8 plus 1 = 9.

Next, multiply the two fractions together, like you learned in Activity Sheet 14A.

$$\frac{7}{3} \times \frac{9}{2} = \frac{7 \times \cancel{9}^{3}}{_{1}\cancel{3} \times 2} = \frac{7 \times 3}{1 \times 2} = \frac{21}{2}$$ (Cancelling made the problem easier.)

Last, you need to <u>reduce</u> the fraction. Turn it into a mixed number, like you learned in Activity Sheets 4A and 5A.

$$\frac{21}{2} = \quad 2\overline{)21}\,^{10\,\frac{1}{2}} = 10\frac{1}{2}$$
$$\frac{2}{01}$$
$$\frac{0}{1}$$

because 21÷2 = 10 $\frac{1}{2}$.

Instructions: Multiply these mixed numbers. Follow the steps outlined above. Reduce the answers where necessary. Cancel whenever you can.

---

1. $1\frac{1}{3} \times 2\frac{1}{3} =$ 3. $2\frac{1}{5} \times 1\frac{2}{3} =$

2. $1\frac{1}{4} \times 1\frac{1}{5} =$ 4. $1\frac{1}{6} \times 3\frac{1}{2} =$

Fractions
Activity Sheet 16A, Continued
Multiplying Mixed Numbers

Name _____

5. $2\frac{3}{5} \times 3\frac{2}{9} =$

13. $4\frac{7}{12} \times 2\frac{4}{15} =$

6. $4\frac{2}{3} \times 1\frac{3}{8} =$

14. $6\frac{2}{9} \times 1\frac{1}{3} =$

7. $2\frac{5}{6} \times 3\frac{5}{7} =$

15. $2\frac{2}{3} \times 2\frac{3}{4} =$

8. $1\frac{1}{4} \times 3\frac{2}{10} =$

16. $12\frac{1}{2} \times 15\frac{1}{4} =$

9. $5\frac{2}{5} \times 2\frac{5}{8} =$

17. $11\frac{2}{3} \times 17\frac{3}{4} =$

10. $3\frac{3}{4} \times 2\frac{3}{10} =$

18. $5\frac{2}{8} \times 4\frac{5}{4} =$

11. $2\frac{3}{4} \times 4\frac{4}{5} =$

19. $3\frac{5}{14} \times 6\frac{6}{7} =$

12. $7\frac{2}{7} \times 3\frac{1}{9} =$

20. $2\frac{6}{9} \times 4\frac{7}{9}$

In this activity you will learn how to divide one fraction by another.

$$\frac{1}{3} \div \frac{1}{2} =$$

Dividing fractions is the same as multiplying fractions <u>except</u> for one important step. First, you <u>turn the second fraction in the problem upside down</u> before you multiply.

$$\frac{1}{3} \div \frac{1}{2}$$
$$\downarrow \quad \downarrow$$
$$\frac{1}{3} \times \frac{2}{1}$$

(Second fraction turned upside down and problem sign changed to multiply)

You always turn the second fraction upside down before you multiply. That is the only difference between dividing fractions and multiplying fractions. When you have completed that step, you just multiply the numerators times each other, and the denominators times each other, just as you did in Activity Sheet 14A on multiplying fractions.

Here is the whole process at step at a time:

(1) $\frac{1}{3} \div \frac{1}{4} =$ (1) Turn the second fraction <u>upside down</u>.

(2) $\frac{1}{3} \times \frac{4}{1} =$ (2) <u>Change</u> the <u>sign</u> to <u>multiply</u>.

(3) $\frac{1 \times 4}{3 \times 1} = \frac{4}{3}$ (3) <u>Multiply</u> numerators and denominators.

(4) $\frac{4}{3} = 1\frac{1}{3}$ (4) <u>Reduce</u> the answer if necessary.

Instructions: Divide these fraction problems. Reduce the answers where necessary. Remember the steps you just learned.

---

1. $\frac{1}{3} \div \frac{1}{2} =$ 3. $\frac{1}{3} \div \frac{1}{5} =$

2. $\frac{1}{2} \div \frac{1}{4} =$ 4. $\frac{1}{4} \div \frac{1}{7} =$

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Name _____

5. $\dfrac{1}{3} \div \dfrac{1}{6} =$

6. $\dfrac{1}{5} \div \dfrac{1}{4} =$

7. $\dfrac{1}{2} \div \dfrac{1}{6} =$

8. $\dfrac{1}{4} \div \dfrac{1}{9} =$

9. $\dfrac{1}{5} \div \dfrac{1}{3} =$

10. $\dfrac{1}{3} \div \dfrac{1}{4} =$

11. $\dfrac{3}{5} \div \dfrac{1}{3} =$

12. $\dfrac{3}{4} \div \dfrac{1}{8} =$

13. $\dfrac{6}{5} \div \dfrac{5}{6} =$

14. $\dfrac{4}{9} \div \dfrac{2}{7} =$

15. $\dfrac{8}{9} \div \dfrac{3}{5} =$

16. $\dfrac{2}{5} \div \dfrac{1}{3} =$

17. $\dfrac{7}{8} \div \dfrac{6}{7} =$

18. $\dfrac{2}{3} \div \dfrac{3}{8} =$

19. $\dfrac{9}{10} \div \dfrac{8}{9} =$

20. $\dfrac{3}{7} \div \dfrac{1}{6} =$

Fractions
Activity Sheet 18A
Dividing Whole Numbers by Fractions or
    Fractions by Whole Numbers   Name_____

This activity will show you how to divide whole numbers by fractions or fractions by whole numbers. Both problems are the same. They both have the same steps.

(1) First, you put
     the whole number
     over 1 to make
     it a fraction.

$2 \div \frac{1}{3}$ or $\frac{1}{3} \div 2 =$

$\frac{2}{1} \div \frac{1}{3}$ or $\frac{1}{3} \div \frac{2}{1} =$

(2) Then, as in
     Activity Sheet 17A
     on Dividing Fractions
     by Fractions, you
     turn the second
     fraction upside
     down and change
     the sign to
     multiply.

$\frac{2}{1} \times \frac{3}{1}$ or $\frac{1}{3} \times \frac{1}{2} =$

(3) Then you multiply
     the numerator
     times the
     numerator and
     the denominator
     times the denomina-
     tor to give you
     the answer(s).

$\frac{2}{1} \times \frac{3}{1} = \frac{6}{1}$ or $\frac{1}{3} \times \frac{1}{2} = \frac{1}{6}$

No reduction needed.

(4) Then you reduce the
     answer if necessary.

$\frac{6}{1} = 6$ or $\frac{1}{6}$

Instructions: Divide the following problems. Follow the steps shown above.

Example: $6 \div \frac{3}{4} = \frac{6}{1} \div \frac{3}{4} = \frac{6}{1} \times \frac{4}{3} = \frac{\overset{2}{6} \times 4}{1 \times \underset{1}{3}} = \frac{8}{1} = 8$

Put whole   Turn second
number   fraction
over 1.   upside down   Multiply.   Reduce
                 and change   Cancel if   answer.
                 sign to   you can.
                 multiply.

Fractions
Activity Sheet 18A , Continued
Dividing Whole Numbers by Fractions or
      Fractions by Whole Numbers   Name_____

1. $\frac{1}{5} \div 5 =$

2. $7 \div \frac{1}{7} =$

3. $4 \div \frac{1}{4} =$

4. $\frac{17}{36} \div 6 =$

5. $3 \div \frac{5}{16} =$

6. $2 \div \frac{12}{25} =$

7. $9 \div \frac{14}{43} =$

8. $\frac{6}{27} \div 8 =$

9. $\frac{100}{30} \div 10 =$

10. $7 \div \frac{3}{10} =$

11. $5 \div \frac{6}{11} =$

12. $\frac{7}{9} \div 4 =$

13. $6 \div \frac{4}{13} =$

14. $\frac{3}{11} \div 11 =$

15. $17 \div \frac{6}{17} =$

16. $\frac{5}{6} \div 21 =$

17. $16 \div \frac{3}{14} =$

18. $\frac{3}{4} \div 5 =$

19. $72 \div \frac{3}{18} =$

20. $\frac{16}{21} \div 10 =$

Fractions
Activity Sheet 19A
Dividing Mixed Numbers by
    Mixed Numbers

Name _____

This lesson will show you how to divide mixed numbers by mixed numbers.

$$2 \frac{1}{3} \div 3 \frac{1}{2} = ?$$

To do this you need to follow four steps.

(1)   Convert the mixed numbers into fractions as in Activity Sheet 3A.

$$2 \frac{1}{3} \div 3 \frac{1}{2} =$$

(2)   Turn the second fraction upside down and change the sign to multiply as you did in Activity Sheet 18A.

$$\frac{7}{3} \div \frac{7}{2} =$$

$$\frac{7}{3} \times \frac{2}{7} =$$

(3)   Multiply the numerators and the denominators to give you the answer.

$$\frac{7 \times 2}{3 \times 7} = \frac{14}{21}$$

(4)   Reduce the answer to its simplest form, as in Activity Sheets 4A and 5A.

$$\frac{14 \div 7}{21 \div 7} = \frac{2}{3}$$

As you can see, it is simple when you follow the steps. Now, you try a few.

Instructions: Divide the following problems. Use the four steps. Reduce the answers where necessary.

Fractions
Activity Sheet 19A, Continued
Dividing Mixed Numbers by
Mixed Numbers

Name_____

1. $1\frac{1}{3} \div 2\frac{1}{3} =$

2. $1\frac{1}{4} \div 1\frac{1}{5} =$

3. $2\frac{1}{5} \div 1\frac{2}{3} =$

4. $4\frac{1}{2} \div 3\frac{1}{2} =$

5. $2\frac{3}{5} \div 3\frac{2}{10} =$

6. $2\frac{5}{6} \div 1\frac{2}{15} =$

7. $4\frac{2}{3} \div 1\frac{2}{9} =$

8. $5\frac{3}{5} \div 2\frac{5}{8} =$

9. $1\frac{1}{4} \div 3\frac{2}{11} =$

10. $4\frac{3}{4} \div 2\frac{3}{10} =$

11. $4\frac{5}{12} \div 2\frac{4}{12} =$

12. $7\frac{3}{7} \div 1\frac{1}{7} =$

13. $2\frac{3}{4} \div 4\frac{1}{8} =$

14. $10\frac{1}{8} \div 3\frac{3}{10} =$

15. $2\frac{3}{8} \div 3\frac{1}{4} =$

16. $6\frac{4}{11} \div 6\frac{8}{22} =$

17. $3\frac{1}{4} \div 10\frac{1}{2} =$

18. $16\frac{2}{3} \div 4\frac{1}{6} =$

19. $11\frac{2}{3} \div 7\frac{7}{9} =$

20. $2\frac{7}{9} \div 4\frac{5}{9} =$

Name _____

　　　To convert fractions to decimals, you divide the denominator into the numerator like you did in Activity Sheet 5A. Then you round off the answer if the decimal number gets too long.

Example: Convert $\frac{3}{8}$ into a decimal.

$8\overline{)\ 3\ \ \ }$

(1)　First, turn the fraction into a division problem like you did in Activity Sheet 5A.

$8\overline{)\ 3.\ \ \ }$

(2)　Next, put a <u>decimal point</u> to the right of the number under the division sign (which was the <u>numerator</u> of the decimal). Put another <u>decimal point</u> exactly above it, on top of the division sign.

$8\overline{)\ 3.000\ }$

(3)　Put some 0's after the numerator. This makes it easier to divide.

```
    .375
8/ 3.000
   2 4
     60
     56
      40
      40
       0
```

(4)　Divide. Use long division. Make sure you line up your answers correctly. When you are through dividing, the answer above the line is a <u>decimal</u>. It means the same thing as the fraction you started with.

Sometimes, when you try to turn a fraction into a decimal, you find out you could keep on dividing forever. Look at this problem:

$\frac{7}{11}$ = $11\overline{)\ 7\ \ \ }$

↓

$11\overline{)\ 7.000\ }$

↓

```
     .636363
11/ 7.000000
    6 6
      40
      33
       70
       66
        40
        33
         70
         66
          40
          33
           7
```

Even after doing this many steps, you still have a remainder. You will <u>always</u> have a remainder. If you kept dividing until your numbers reached all the way around Fort Ord, you would <u>still</u> have a remainder.

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So, you <u>round</u> your answer. This means you cut it off at a sensible place.
Many people like to cut off a decimal after <u>three places</u>. This means there
are <u>three digits</u> to the right of the decimal point.

In order to <u>round</u> a decimal, divide it out to <u>one more place</u> than you want.
Then "round" the <u>answer</u>.

```
        .6363
   11/ 7.0000
        6 6
          40
          33
          70
          66
          40
          33
           7
```
                              .6363

                              .636

Divide to <u>four places</u>

Round to <u>three places</u>. If the
<u>last number</u> is 4 or less, just
drop it. If the last number is
5 ot more (5,6,7,8, or 9), then
drop it, but add one to the
next number to the left.

Here are some <u>rounded</u> decimals.

.3487 ⇨ .349   Round <u>up</u> to .349

.2824 ⇨ .282   Round <u>down</u> to .282

.8493 ⇨ .849   Round <u>down</u> to .849

.7275 ⇨ .728   Round <u>up</u> to .728

Now, look at this example:

Convert $4\frac{1}{9}$ into a decimal.

$4\frac{1}{9}$ = $\frac{37}{9}$ = $9/\overline{37}$

(1) Make the problem into a
     division problem.

$9/\overline{37.0000}$

(2) Add decimals and zeros.

```
        4.1111
   9/ 37.0000
        36
         1 0
           9
          10
           9
          10
           9
          10
           9
           1
```

(3) Divide. Go to four places.

(4) Round the answer to three places.

4.1111 ⟶ 4.111

It is easy if you follow all the steps.

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Fractions
Activity Sheet 20A, Continued
Converting Fractions to Decimals   Name _____

Instructions: Change these fractions into decimals. Round off to three places
when necessary. Do your work on scratch paper but keep it to show to the peer
tutor and teacher.

---

1. $\dfrac{1}{2}$ =

2. $\dfrac{1}{3}$ =

3. $\dfrac{1}{4}$ =

4. $\dfrac{1}{5}$ =

5. $\dfrac{1}{10}$ =

6. $\dfrac{1}{100}$ =

7. $\dfrac{1}{1000}$ =

8. $\dfrac{3}{4}$ =

9. $\dfrac{3}{5}$ =

10. $\dfrac{2}{3}$ =

11. $\dfrac{2}{5}$ =

12. $\dfrac{3}{8}$ =

13. $\dfrac{1}{16}$ =

14. $\dfrac{3}{7}$ =

15. $\dfrac{5}{6}$ =

16. $\dfrac{7}{8}$ =

17. $\dfrac{4}{9}$ =

18. $\dfrac{2}{11}$ =

19. $\dfrac{7}{13}$ =

20. $\dfrac{74}{135}$ =

Check Sheet
Fractions (Continued)
Activity Sheet 1A
What is a Fraction?

Name _____

ANSWERS

3.
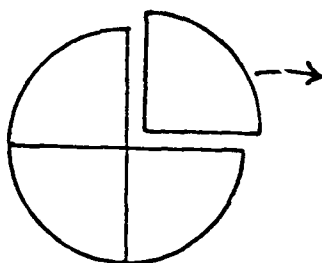
3. $\dfrac{1}{4}$

4.
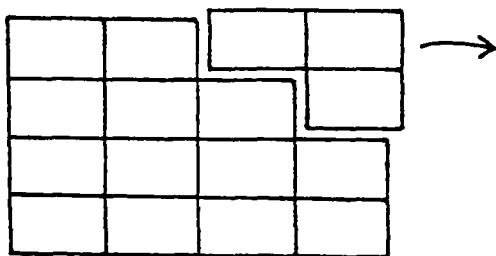
4. $\dfrac{3}{16}$

5.
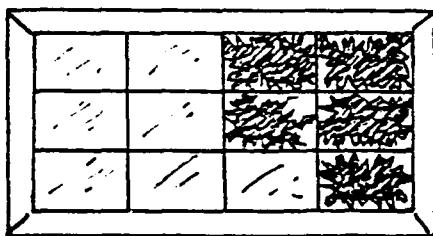
What fraction of
window panes are
broken?

5. $\dfrac{5}{12}$

6.
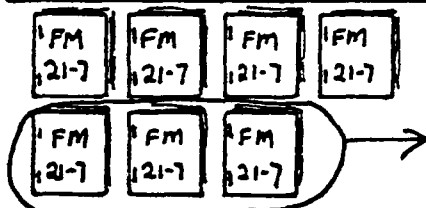
6. $\dfrac{3}{7}$

7.
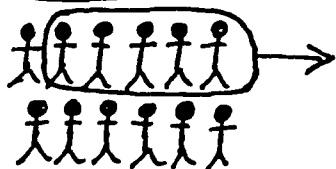
What fraction got
volunteered for
K.P.?

7. $\dfrac{5}{12}$

8.
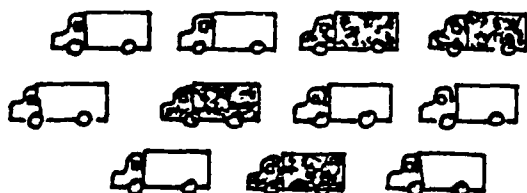
What fraction of trucks
are camouflage painted?

8. $\dfrac{4}{11}$

9.

What fraction of these
rounds are tracers
(marked with a T)?

9. $\dfrac{8}{16}$ or $\dfrac{4}{8}$ or $\dfrac{2}{4}$ or $\dfrac{1}{2}$

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Name _____

10.

What fraction of the
men are carrying rifles?   10. $\dfrac{9}{13}$

Name _____

		Proper	Improper	Mixed			Proper	Improper	Mixed
1.	$\frac{1}{2}$	■	☐	☐	11.	$\frac{8}{5}$	☐	■	☐
2.	$\frac{2}{3}$	■	☐	☐	12.	$7\frac{9}{10}$	☐	☐	■
3.	$\frac{5}{6}$	■	☐	☐	13.	$\frac{14}{8}$	☐	■	☐
4.	$\frac{12}{9}$	☐	■	☐	14.	$\frac{10}{11}$	■	☐	☐
5.	$2\frac{1}{3}$	☐	☐	■	15.	$\frac{11}{10}$	☐	■	☐
6.	$\frac{7}{3}$	☐	■	☐	16.	$\frac{3}{4}$	■	☐	☐
7.	$\frac{3}{7}$	■	☐	☐	17.	$\frac{9}{21}$	■	☐	☐
8.	$\frac{4}{11}$	■	☐	☐	18.	$17\frac{4}{5}$	☐	☐	■
9.	$2\frac{5}{8}$	☐	☐	■	19.	$\frac{16}{33}$	■	☐	☐
10.	$\frac{5}{8}$	■	☐	☐	20	$\frac{93}{92}$	☐	■	☐

Fractions (Continued)
Activity Sheet 3A
Changing Mixed Numbers to Fractions

1. $5\frac{2}{3} = \frac{17}{3}$

2. $3\frac{5}{6} = \frac{23}{6}$

3. $4\frac{1}{8} = \frac{33}{8}$

4. $1\frac{6}{10} = \frac{16}{10}$

5. $2\frac{5}{9} = \frac{23}{9}$

6. $5\frac{3}{4} = \frac{23}{4}$

7. $7\frac{3}{8} = \frac{59}{8}$

8. $3\frac{1}{9} = \frac{28}{9}$

9. $4\frac{3}{11} = \frac{47}{11}$

10. $8\frac{5}{8} = \frac{69}{8}$

11. $6\frac{3}{4} = \frac{27}{4}$

12. $8\frac{1}{7} = \frac{57}{7}$

13. $19\frac{2}{3} = \frac{59}{3}$

14. $11\frac{1}{2} = \frac{23}{2}$

15. $57\frac{3}{4} = \frac{231}{4}$

In this lesson you will learn to reduce fractions. You do this by dividing numbers into the numerator (top number) and denominator (bottom number) of a fraction. This produces a fraction that is in its simplest form.

Reducing proper fractions takes some judgment. You start with 2 and try numbers (2, 3, 4, 5, etc.) until you find a number that will divide into both the numerator and denominator <u>evenly</u>. You keep doing that until you can't do it any more. At that point the fraction is reduced.

Examples:

1. $\dfrac{5}{10}$ $\dfrac{5 \div 5}{10 \div 5} = \dfrac{1}{2}$ because $5 \div 5 = 1$ and $10 \div 5 = 2$

2. $\dfrac{5}{50}$ $\dfrac{5 \div 5}{50 \div 5} = \dfrac{1}{10}$

3. $\dfrac{40}{200}$ $\dfrac{40 \div 4}{200 \div 4} = \dfrac{10}{50}$ $\dfrac{10 \div 5}{50 \div 5} = \dfrac{2}{10}$ $\dfrac{2 \div 2}{10 \div 2} = \dfrac{1}{5}$

You may have to divide several times until you can't divide any more numbers into both halves of the fraction.

Instructions: Reduce these fractions. Write out all of your steps.

1. $\dfrac{6}{12} = \dfrac{1}{2}$

2. $\dfrac{15}{225} = \dfrac{1}{15}$

3. $\dfrac{14}{42} = \dfrac{1}{3}$

4. $\dfrac{9}{27} = \dfrac{1}{3}$

5. $\dfrac{18}{27} = \dfrac{2}{3}$

6. $\dfrac{14}{28} = \dfrac{1}{2}$

Fractions
Activity Sheet 4A, Continued
Reducing Proper Fractions

Name _____

7. $\frac{8}{28}$ = $\frac{2}{7}$

15. $\frac{16}{23}$ = $\frac{2}{3}$

8. $\frac{22}{46}$ = $\frac{11}{23}$

16. $\frac{18}{30}$ = $\frac{3}{5}$

9. $\frac{30}{36}$ = $\frac{5}{6}$

17. $\frac{13}{39}$ = $\frac{1}{3}$

10. $\frac{21}{24}$ = $\frac{7}{8}$

18. $\frac{7}{49}$ = $\frac{1}{7}$

11. $\frac{32}{38}$ = $\frac{16}{19}$

19. $\frac{18}{22}$ = $\frac{9}{11}$

12. $\frac{5}{50}$ = $\frac{1}{10}$

20. $\frac{8}{72}$ = $\frac{1}{9}$

13. $\frac{9}{63}$ = $\frac{1}{7}$

14. $\frac{8}{56}$ = $\frac{1}{7}$

Name _____

1. [A] ■ [C] [D]   11. [A] ■ [C] [D]

2. [A] [B] ■ [D]   12. [A] ■ [C] [D]

3. [A] [B] [C] ■   13. [A] [B] ■ [D]

4. [A] ■ [C] [D]   14. [A] [B] ■ [D]

5. ■ [B] [C] [D]   15. [A] [B] ■ [D]

6. [A] [B] [C] ■   16. [A] ■ [C] [D]

7. [A] [B] ■ [D]   17. [A] ■ [C] [D]

8. [A] [B] [C] ■   18. [A] ■ [C] [D]

9. [A] [B] ■ [D]   19. [A] [B] [C] ■

10. [A] ■ [C] [D]   20. [A] ■ [C] [D]

Name _____

1. $\frac{2}{3} + \frac{1}{4}$

   $\frac{8}{12} + \frac{3}{12}$

6. $\frac{1}{8} + \frac{1}{6}$

   $\frac{6}{46} + \frac{8}{48}$

11. $\frac{3}{8} - \frac{2}{9}$

   $\frac{27}{72} - \frac{16}{72}$

2. $\frac{1}{6} + \frac{1}{7}$

   $\frac{7}{42} + \frac{6}{42}$

7. $\frac{4}{7} - \frac{3}{11}$

   $\frac{44}{77} - \frac{21}{77}$

12. $\frac{5}{7} - \frac{3}{5}$

   $\frac{25}{35} - \frac{21}{35}$

3. $\frac{1}{5} + \frac{3}{7}$

   $\frac{7}{35} + \frac{15}{35}$

8. $\frac{8}{11} - \frac{2}{3}$

   $\frac{24}{33} - \frac{22}{33}$

13. $\frac{7}{8} + \frac{4}{5}$

   $\frac{35}{40} + \frac{32}{40}$

4. $\frac{1}{2} + \frac{1}{3}$

   $\frac{3}{6} + \frac{2}{6}$

9. $\frac{5}{6} + \frac{6}{7}$

   $\frac{35}{42} + \frac{36}{42}$

14. $\frac{2}{9} + \frac{7}{11}$

   $\frac{22}{99} + \frac{63}{99}$

5. $\frac{1}{10} + \frac{1}{2}$

   $\frac{2}{20} + \frac{10}{20}$

10. $\frac{3}{4} - \frac{3}{5}$

   $\frac{15}{20} - \frac{12}{20}$

15. $\frac{4}{5} + \frac{5}{4}$

   $\frac{16}{20} + \frac{25}{20}$

16. $\frac{4}{7} + \frac{6}{13}$

$\frac{52}{91} + \frac{42}{91}$

17. $\frac{1}{3} + \frac{7}{8}$

$\frac{8}{24} + \frac{21}{24}$

18. $\frac{4}{9} + \frac{5}{11}$

$\frac{44}{99} + \frac{45}{99}$

19. $\frac{7}{20} + \frac{2}{5}$

$\frac{35}{100} + \frac{40}{100}$

20. $\frac{7}{9} + \frac{3}{8}$

$\frac{56}{72} + \frac{27}{72}$

Name _____

In this lesson you will learn to add fractions that have the same bottom number (denominator).

Adding fractions with common denominators is very easy. All you have to do is add the top numbers together to get the new numerator (top number). The answer's denominator is the same bottom number as the fractions in the problem.

Adding top numbers

Examples:

$\textcircled{1}$ $\frac{}{3}$ + $\textcircled{2}$ $\frac{}{3}$ = $\frac{3}{3}$ = 1

Using same bottom number

Remember to reduce the answer fraction like you did in Activity Sheets 4A and 5A.

$$\frac{1}{6} + \frac{4}{6} = \frac{5}{6}$$

$$\frac{3}{8} + \frac{7}{8} = \frac{10}{8} = 1\frac{2}{8} = 1\frac{1}{4}$$

$$\frac{16}{42} + \frac{23}{42} = \frac{39}{42} = \frac{13}{14}$$

Instructions: Add up these fractions and reduce the answer to its simplest form. If you have trouble with reducing the answer, look at Activity Sheets 4A and 5A.

1. $\frac{12}{13}$ + $\frac{9}{13}$ =

   $1\frac{8}{13}$

3. $\frac{2}{9}$ + $\frac{7}{9}$ =

   1

5. $\frac{9}{23}$ + $\frac{16}{23}$ =

   $1\frac{2}{23}$

2. $\frac{3}{8}$ + $\frac{5}{8}$ =

   1

4. $\frac{4}{7}$ + $\frac{3}{7}$ =

   1

6. $\frac{2}{5}$ + $\frac{4}{5}$ =

   $1\frac{1}{5}$

Name_____

7. $\frac{5}{10}$ + $\frac{4}{10}$ =

$\frac{9}{10}$

12. $\frac{25}{83}$ + $\frac{78}{83}$ =

$1\frac{10}{83}$

17. $\frac{17}{25}$ + $\frac{11}{25}$ =

$1\frac{3}{25}$

8. $\frac{9}{11}$ + $\frac{5}{11}$ =

$1\frac{3}{11}$

13. $\frac{16}{19}$ + $\frac{12}{19}$ =

$1\frac{9}{19}$

18. $\frac{9}{42}$ + $\frac{5}{42}$ =

$\frac{1}{3}$

9. $\frac{14}{15}$ + $\frac{13}{15}$ =

$1\frac{4}{5}$

14. $\frac{27}{47}$ + $\frac{41}{47}$ =

$1\frac{21}{47}$

19. $\frac{16}{53}$ + $\frac{9}{53}$ =

$\frac{25}{53}$

10. $\frac{12}{17}$ + $\frac{9}{17}$ =

$1\frac{4}{17}$

15. $\frac{42}{51}$ + $\frac{25}{51}$ =

$1\frac{16}{51}$

20. $\frac{65}{100}$ + $\frac{35}{100}$ =

1

11. $\frac{21}{75}$ + $\frac{35}{75}$ =

$\frac{56}{75}$

16. $\frac{7}{26}$ + $\frac{5}{26}$ =

$\frac{6}{13}$

Check Sheet
Fractions
Activity Sheet 8A, Continued
Adding Fractions with
    Different Denominators

Name_____

1. $\frac{1}{2} + \frac{1}{1} = 1\frac{1}{2}$

6. $\frac{1}{3} + \frac{1}{7} = \frac{10}{21}$

2. $\frac{1}{2} + \frac{1}{4} = \frac{3}{4}$

7. $\frac{1}{4} + \frac{1}{7} = \frac{11}{28}$

3. $\frac{1}{3} + \frac{1}{4} = \frac{7}{12}$

8. $\frac{1}{5} + \frac{1}{4} = \frac{9}{20}$

4. $\frac{1}{3} + \frac{1}{5} = \frac{8}{15}$

9. $\frac{1}{6} + \frac{1}{2} = \frac{2}{3}$

5. $\frac{1}{3} + \frac{1}{6} = \frac{1}{2}$

10. $\frac{1}{4} + \frac{1}{9} = \frac{13}{36}$

Name_____

11. $\dfrac{3}{5} + \dfrac{1}{3} = \dfrac{14}{15}$

16. $\dfrac{3}{5} + \dfrac{8}{9} = 1\dfrac{22}{45}$

12. $\dfrac{3}{4} + \dfrac{1}{8} = \dfrac{7}{8}$

17. $\dfrac{1}{3} + \dfrac{2}{5} = \dfrac{11}{15}$

13. $\dfrac{3}{8} + \dfrac{2}{3} = 1\dfrac{1}{24}$

18. $\dfrac{3}{7} + \dfrac{1}{8} = \dfrac{31}{56}$

14. $\dfrac{5}{6} + \dfrac{6}{5} = 2\dfrac{1}{30}$

19. $\dfrac{2}{9} + \dfrac{3}{7} = \dfrac{41}{63}$

15. $\dfrac{4}{9} + \dfrac{2}{7} = \dfrac{46}{63}$

20. $\dfrac{7}{8} + \dfrac{8}{9} = 1\dfrac{55}{72}$

Name_____

Instructions: Add up these problems. Add the fractions first. Then, add the whole numbers. You may have to find common denominators. Then you reduce the fractions answer to its simplest terms. Last, add the whole numbers answer and the fractions answer together.

Example: $2\frac{3}{8} + 4\frac{6}{7} =$

$$2 + 4 = \boxed{6} \qquad \frac{3}{8} + \frac{6}{7} = \frac{3 \times 7}{8 \times 7} + \frac{8 \times 6}{8 \times 7} = \frac{21}{56} + \frac{48}{56} = \frac{69}{56} = \boxed{1\frac{13}{56}}$$

$$6 + 1\frac{13}{56} = 7\frac{13}{56}$$

---

1. $1\frac{1}{2} + 1\frac{1}{3} = 2\frac{5}{6}$

2. $1\frac{1}{4} + 1\frac{1}{3} = 2\frac{7}{12}$

3. $1\frac{3}{8} + 1\frac{1}{6} = 2\frac{13}{24}$

4. $3\frac{5}{7} + 4\frac{1}{5} = 7\frac{32}{35}$

5. $1\frac{2}{3} + 1\frac{3}{4} = 3\frac{5}{12}$

6. $1\frac{3}{5} + 1\frac{7}{8} = 3\frac{19}{40}$

7. $4\frac{2}{9} + 7\frac{5}{8} = 11\frac{61}{72}$

8. $3\frac{1}{11} + 5\frac{1}{7} = 8\frac{18}{77}$

9. $17 \frac{3}{7} + 2 \frac{9}{10} = 20 \frac{23}{70}$

15. $10 \frac{2}{7} + 12 \frac{1}{2} = 22 \frac{11}{14}$

10. $6 \frac{7}{10} + 9 \frac{13}{14} = 16 \frac{22}{35}$

16. $14 \frac{2}{5} + 18 \frac{7}{9} = 33 \frac{8}{45}$

11. $4 \frac{2}{5} + 5 \frac{5}{6} = 10 \frac{7}{30}$

17. $22 \frac{4}{11} + 7 \frac{7}{10} = 30 \frac{7}{110}$

12. $8 \frac{4}{9} + 8 \frac{3}{4} = 17 \frac{7}{36}$

18. $15 \frac{9}{10} + 19 \frac{1}{4} = 35 \frac{3}{20}$

13. $7 \frac{2}{3} + 5 \frac{1}{5} = 12 \frac{13}{15}$

19. $27 \frac{3}{5} + 55 \frac{4}{7} = 83 \frac{6}{35}$

14. $11 \frac{4}{5} + 6 \frac{7}{11} = 18 \frac{24}{55}$

20. $138 \frac{1}{3} + 116 \frac{1}{8} = 254 \frac{11}{24}$

In this lesson you will learn to subtract fractions that have the same bottom number (denominator).

Subtracting fractions with common denominators (bottom numbers) is very easy. All you have to do is subtract the top numbers (numerators) of each fraction from each other to get the answer's numerator. To get the answer's denominator you just use the same bottom number as the fractions in the problem.

Example: $\dfrac{2}{3} - \dfrac{1}{3} = \dfrac{2-1}{3} = \dfrac{1}{3}$

Subtracting top numbers 7 - 3 = 5

$\dfrac{7}{8} - \dfrac{3}{8} = \dfrac{7-3}{8} = \dfrac{5}{8}$

Using the same bottom numbers

If your answer can be reduced, remember to reduce it.

$\dfrac{5}{6} - \dfrac{1}{6} = \dfrac{5-1}{6} = \dfrac{4}{6} = \dfrac{2}{3}$

Instructions: Do subtraction on the problems. If necessary, reduce the answer to its simplest form. If you have trouble reducing the answer, look at Fractions Activity Sheet 4A.

1. $\dfrac{4}{7} - \dfrac{3}{7} = \dfrac{1}{7}$

3. $\dfrac{5}{8} - \dfrac{3}{8} = \dfrac{1}{4}$

5. $\dfrac{5}{10} - \dfrac{4}{10} = \dfrac{1}{10}$

2. $\dfrac{7}{9} - \dfrac{2}{9} = \dfrac{5}{9}$

4. $\dfrac{12}{13} - \dfrac{9}{13} = \dfrac{3}{13}$

6. $\dfrac{9}{11} - \dfrac{5}{11} = \dfrac{4}{11}$

7. $\frac{4}{5} - \frac{2}{5} = \frac{2}{5}$

12. $\frac{78}{213} - \frac{25}{213} = \frac{53}{213}$

17. $\frac{117}{251} - \frac{110}{251} = \frac{7}{251}$

8. $\frac{16}{23} - \frac{9}{23} = \frac{7}{23}$

13. $\frac{42}{119} - \frac{25}{119} = \frac{1}{7}$

18. $\frac{166}{753} - \frac{97}{753} = \frac{23}{251}$

9. $\frac{12}{17} - \frac{9}{17} = \frac{3}{17}$

14. $\frac{112}{193} - \frac{16}{193} = \frac{96}{193}$

19. $\frac{471}{476} - \frac{275}{476} = \frac{7}{17}$

10. $\frac{14}{15} - \frac{12}{15} = \frac{2}{15}$

15. $\frac{83}{296} - \frac{44}{296} = \frac{39}{296}$

20. $\frac{65}{100} - \frac{35}{100} = \frac{3}{10}$

11. $\frac{35}{75} - \frac{21}{75} = \frac{14}{75}$

16. $\frac{521}{842} - \frac{291}{842} = \frac{115}{421}$

Name _____

> This activity will teach you to subtract fractions that have different bottom numbers (denominators). The first and most important step is to find common denominators for each problem. If you don't know how to find common denominators, see Activity Sheet 10A.
>
> When your fractions have common denominators, then (as described in Fraction Activity Sheet 10A), you subtract the numerators to get the answer's numerator. For the answer's denominator, use the same denominator as the rest of the fractions in the problem. For example:
>
> $$\frac{3}{6} - \frac{2}{6} = \frac{3-2}{6} = \frac{1}{6}$$
>
> Now, in some cases you will need to reduce the answer. If you don't know how to reduce fractions, see Activity Sheet 4A.

Instructions: Subtract the fractions in each problem from each other and reduce the answers where necessary. Remember to find the common denominators first.

Examples:

1. $\frac{1}{4} - \frac{1}{8} = \frac{1 \times 8}{4 \times 8} - \frac{1 \times 4}{8 \times 4} = \frac{8}{32} - \frac{4}{32} = \frac{4}{32} = \frac{1}{8}$

2. $\frac{1}{5} - \frac{1}{6} = \frac{1 \times 6}{5 \times 6} - \frac{1 \times 5}{6 \times 5} = \frac{6}{30} - \frac{5}{30} = \frac{1}{30}$

---

1. $\frac{1}{1} - \frac{1}{2} = \frac{1}{2}$

2. $\frac{1}{2} - \frac{1}{4} = \frac{1}{4}$

3. $\frac{1}{3} - \frac{1}{4} = \frac{1}{12}$

4. $\frac{1}{3} - \frac{1}{5} = \frac{2}{15}$

Check Sheet
Fractions
Activity Sheet 11A, Continued
Subtracting Fractions with
  Different Denominators

Name_____

5. $\frac{1}{3} - \frac{1}{6} = \frac{1}{6}$

10. $\frac{1}{4} - \frac{1}{9} = \frac{5}{36}$

6. $\frac{1}{3} - \frac{1}{7} = \frac{4}{21}$

11. $\frac{3}{5} - \frac{1}{3} = \frac{4}{15}$

7. $\frac{1}{4} - \frac{1}{7} = \frac{3}{28}$

12. $\frac{3}{4} - \frac{1}{8} = \frac{5}{8}$

8. $\frac{1}{4} - \frac{1}{5} = \frac{1}{20}$

13. $\frac{2}{3} - \frac{3}{8} = \frac{7}{24}$

9. $\frac{1}{2} - \frac{1}{6} = \frac{1}{3}$

14. $\frac{6}{5} - \frac{5}{6} = \frac{11}{30}$

Name_____

15. $\frac{4}{9} - \frac{2}{7} = \frac{10}{63}$

19. $\frac{7}{8} - \frac{6}{7} = \frac{1}{56}$

16. $\frac{8}{9} - \frac{3}{5} = \frac{13}{45}$

20. $\frac{9}{10} - \frac{8}{9} = \frac{1}{90}$

17. $\frac{2}{5} - \frac{1}{3} = \frac{1}{15}$

18. $\frac{3}{7} - \frac{1}{6} = \frac{11}{42}$

Name_____

1. $1\frac{2}{3}$

   $-1\frac{1}{2}$

   $\overline{\frac{1}{6}}$

2. $1\frac{3}{4}$

   $-1\frac{1}{3}$

   $\overline{\frac{5}{12}}$

3. $1\frac{5}{6}$

   $-1\frac{3}{8}$

   $\overline{\frac{11}{24}}$

4. $3\frac{1}{5}$

   $-2\frac{5}{7}$

   $\overline{\frac{17}{35}}$

5. $3\frac{2}{3}$

   $-1\frac{3}{4}$

   $\overline{1\frac{11}{12}}$

6. $1\frac{7}{8} - 1\frac{3}{5} = \frac{11}{40}$

7. $7\frac{5}{8}$

   $-4\frac{2}{9}$

   $\overline{3\frac{29}{72}}$

8. $5\frac{1}{10}$

   $-3\frac{1}{11}$

   $\overline{2\frac{1}{110}}$

9. $17\frac{3}{7} - 2\frac{9}{10} = 14\frac{37}{70}$

10. $9\frac{13}{14} - 6\frac{7}{8} = 3\frac{3}{56}$

11. $5\frac{5}{6} - 4\frac{2}{5} = 1\frac{13}{30}$

12. $9\frac{4}{9} - 8\frac{3}{4} = \frac{25}{36}$

13. $10\frac{2}{7}$

    $-9\frac{1}{2}$

    $\overline{\frac{11}{14}}$

Check Sheet
Fractions
Activity Sheet 12A, Continued
Subtracting Mixed Numbers

Name_____

14. $7 \frac{1}{5}$

$- 5 \frac{2}{3}$

$1 \frac{8}{15}$

15. $18 \frac{7}{9}$

$- 14 \frac{2}{5}$

$4 \frac{17}{45}$

16. $22 \frac{7}{12}$

$- 7 \frac{4}{11}$

$15 \frac{29}{132}$

17. $19 \frac{1}{4}$

$- 15 \frac{9}{10}$

$3 \frac{7}{20}$

18. $11 \frac{4}{5}$

$- 6 \frac{7}{11}$

$5 \frac{9}{55}$

19. $55 \frac{4}{7} - 27 \frac{3}{5} = 27 \frac{34}{35}$

20. $138 \frac{1}{8} - 116 \frac{1}{3} = 21 \frac{19}{24}$

Name _____

1. $\frac{3}{4} \times \frac{2}{9} = \frac{1}{2} \times \frac{1}{3}$

2. $\frac{4}{5} \times \frac{5}{8} = \frac{1}{1} \times \frac{1}{2}$

3. $\frac{2}{3} \times \frac{9}{10} = \frac{1}{1} \times \frac{3}{5}$

4. $\frac{3}{8} \times \frac{1}{36} = \frac{1}{8} \times \frac{1}{12}$

5. $\frac{1}{2} \times \frac{4}{7} = \frac{1}{7} \times \frac{2}{7}$

6. $\frac{6}{7} \times \frac{6}{14} = \frac{3}{7} \times \frac{6}{7}$

7. $\frac{9}{11} \times \frac{1}{18} = \frac{1}{11} \times \frac{1}{2}$

8. $\frac{13}{14} \times \frac{21}{169} = \frac{1}{2} \times \frac{3}{13}$

9. $\frac{25}{26} \times \frac{52}{625} = \frac{1}{1} \times \frac{2}{25}$

10. $\frac{6}{5} \times \frac{25}{36} = \frac{1}{1} \times \frac{5}{6}$

11. $\frac{4}{11} \times \frac{121}{16} = \frac{1}{1} \times \frac{11}{4}$

12. $\frac{15}{32} \times \frac{128}{75} = \frac{1}{1} \times \frac{4}{1}$

13. $\frac{45}{51} \times \frac{17}{9} = \frac{5}{3} \times \frac{1}{1}$

14. $\frac{23}{52} \times \frac{13}{161} = \frac{1}{4} \times \frac{1}{7}$

15. $\frac{46}{36} \times \frac{6}{10} = \frac{23}{6} \times \frac{1}{5}$

16. $\frac{12}{15} \times \frac{9}{16} = \frac{3}{5} \times \frac{3}{4}$

17. $\frac{13}{4} \times \frac{2}{39} = \frac{1}{2} \times \frac{1}{3}$

18. $\frac{14}{30} \times \frac{10}{28} = \frac{1}{3} \times \frac{1}{2}$

19. $\frac{25}{36} \times \frac{9}{50} = \frac{1}{4} \times \frac{1}{2}$

20. $\frac{21}{84} \times \frac{16}{27} = \frac{7}{21} \times \frac{4}{9}$ OR $\frac{1}{3} \times \frac{4}{9}$

In this lesson you will learn how to multiply fractions times fractions.

$$\frac{1}{2} \times \frac{2}{3} = ?$$

You do this in two steps. First, multiply the numerators times each other; then, multiply the denominators times each other.

$$\frac{1}{2} \times \frac{2}{3} = \frac{1 \times 2}{2 \times 3} = \frac{2}{6} \qquad \text{Then reduce} \qquad \frac{2 \div 2}{6 \div 2} = \frac{1}{3}$$

Multiplying the numerators and multiplying the denominators are two separate problems. They give you the new numerator and the new denominator.

Instructions: Multiply these problems and reduce the answers if necessary.

Examples:

(a) $\frac{3}{4} \times \frac{7}{8} = \frac{3 \times 7}{4 \times 8} = \frac{21}{32}$

(b) $\frac{3}{9} \times \frac{6}{7} = \frac{3 \times 6}{9 \times 7} = \frac{18}{63} = \frac{2}{7}$ (reduced)

(c) $\frac{2}{5} \times \frac{3}{5} = \frac{2 \times 3}{5 \times 5} = \frac{6}{25}$

1. $\frac{1}{4} \times \frac{1}{5} = \frac{1}{20}$

2. $\frac{1}{3} \times \frac{1}{3} = \frac{1}{9}$

3. $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$

4. $\frac{1}{5} \times \frac{2}{3} = \frac{2}{15}$

5. $\frac{3}{5} \times \frac{2}{9} = \frac{2}{15}$

6. $\frac{1}{4} \times \frac{2}{10} = \frac{1}{20}$

7. $\frac{2}{3} \times \frac{3}{8} = \frac{1}{4}$

8. $\frac{5}{6} \times \frac{5}{7} = \frac{25}{42}$

9. $\frac{2}{5}$ x $\frac{5}{8}$ = $\frac{1}{4}$

10. $\frac{3}{4}$ x $\frac{3}{10}$ = $\frac{9}{40}$

11. $\frac{2}{7}$ x $\frac{2}{9}$ = $\frac{4}{63}$

12. $\frac{5}{12}$ x $\frac{4}{15}$ = $\frac{1}{9}$

13. $\frac{3}{4}$ x $\frac{4}{5}$ = $\frac{3}{5}$

14. $\frac{5}{11}$ x $\frac{3}{10}$ = $\frac{3}{22}$

15. $\frac{1}{8}$ x $\frac{1}{4}$ = $\frac{1}{32}$

16. $\frac{3}{6}$ x $\frac{4}{6}$ = $\frac{1}{3}$

17. $\frac{2}{3}$ x $\frac{3}{4}$ = $\frac{1}{2}$

18. $\frac{2}{8}$ x $\frac{5}{4}$ = $\frac{5}{16}$

19. $\frac{6}{9}$ x $\frac{7}{9}$ = $\frac{14}{27}$

20. $\frac{5}{14}$ x $\frac{6}{7}$ = $\frac{15}{49}$

Name _____

In this lesson you will learn to multiply whole numbers times fractions.

For instance, $2 \times \frac{1}{3} = ?$

This is very simple. All you have to do is multiply the <u>whole number times the numerator</u> (top number) <u>of the fraction</u>.

$$2 \times \frac{1}{3} = \frac{2 \times 1}{3} = \frac{2}{3}$$

Then put the answer <u>over the denominator</u> (bottom number.) You have your answer.

Look at these:

$$4 \times \frac{1}{5} = \frac{4 \times 1}{5} = \frac{4}{5} \qquad\qquad 5 \times \frac{2}{7} = \frac{5 \times 2}{7} = \frac{10}{7} = 1\frac{3}{7}$$

Notice that you can sometimes <u>reduce</u> your answer. To find out how to reduce, see Activity Sheets 4A and 5A.

Instructions: Multiply the whole number times the fraction in each problem below. Reduce the answers if you need to.

Example: $7 \times \frac{3}{8} = \frac{7 \times 3}{8} = \frac{21}{8} = 2\frac{5}{8}$

1. $5 \times \frac{1}{5} = 1$

2. $7 \times \frac{1}{7} = 1$

3. $4 \times \frac{1}{4} = 1$

4. $6 \times \frac{6}{36} = 1$

5. $3 \times \frac{5}{15} = 1$

6. $2 \times \frac{12}{24} = 1$

Name _____

7. $9 \times \dfrac{14}{42} = 3$

8. $8 \times \dfrac{6}{24} = 2$

9. $10 \times \dfrac{30}{100} = 3$

10. $7 \times \dfrac{3}{10} = 2\dfrac{1}{10}$

11. $5 \times \dfrac{6}{11} = 2\dfrac{8}{11}$

12. $4 \times \dfrac{7}{9} = 3\dfrac{1}{9}$

13. $6 \times \dfrac{4}{13} = 1\dfrac{11}{13}$

14. $11 \times \dfrac{8}{13} = 6\dfrac{10}{13}$

15. $17 \times \dfrac{6}{51} = 2$

16. $21 \times \dfrac{17}{18} = 19\dfrac{5}{6}$

17. $16 \times \dfrac{3}{14} = 3\dfrac{3}{7}$

18. $5 \times \dfrac{3}{4} = 3\dfrac{3}{4}$

19. $72 \times \dfrac{3}{18} = 12$

20. $112 \times \dfrac{16}{21} = 85\dfrac{1}{3}$

This activity will teach you to multiply mixed numbers times each other.

$$2\frac{1}{3} \times 3\frac{1}{2} =$$

The trick here is to change the mixed numbers into fractions. You learned how to do that in Activity Sheet 3A.

Look at this problem:

$$2\frac{1}{3} \times 4\frac{1}{2} = ?$$

First, change the fractions to mixed numbers.

$$2\frac{1}{3} \times 4\frac{1}{2}$$
$$\downarrow \qquad \downarrow$$
$$\frac{7}{3} \times \frac{9}{2}$$

because 2 x 3 = 6 plus 1 = 7, and
4 x 2 = 8 plus 1 = 9.

Next, multiply the two fractions together, like you learned in Activity Sheet 15A.

$$\frac{7}{3} \times \frac{9}{2} = \frac{7 \times 9}{3 \times 2} = \frac{63}{6}$$

because 7 x 9 = 63 and
3 x 2 = 6.

Last, you need to <u>reduce</u> the fraction. Turn it into a mixed number, like you learned in Activity Sheets 4A and 5A.

$$\frac{63}{6} = 6\,\big/\,\overline{63}\;^{10\frac{3}{6}} = 10\frac{3}{6} = 10\frac{1}{2}$$

$$\frac{6}{03}$$
$$\frac{0}{3}$$

because 63 ÷ 6 = $10\frac{3}{6}$, and $\frac{3}{6} = \frac{1}{2}$.

Instructions: Multiply these mixed numbers. Follow the steps outlined above.
Reduce the answers where necessary.

---

1. $1\frac{1}{3} \times 2\frac{1}{3} = 3\frac{1}{9}$

2. $1\frac{1}{4} \times 1\frac{1}{5} = 1\frac{1}{2}$

3. $2\frac{1}{5} \times 1\frac{2}{3} = 3\frac{2}{3}$

4. $1\frac{1}{6} \times 3\frac{1}{2} = 4\frac{1}{12}$

Name _____

5. $2 \frac{3}{5} \times 3 \frac{2}{9} = 8 \frac{17}{45}$

13. $4 \frac{7}{12} \times 2 \frac{4}{15} = 10 \frac{7}{18}$

6. $4 \frac{2}{3} \times 1 \frac{3}{8} = 6 \frac{5}{12}$

14. $6 \frac{2}{9} \times 1 \frac{1}{3} = 8 \frac{8}{27}$

7. $2 \frac{5}{6} \times 3 \frac{5}{7} = 10 \frac{11}{21}$

15. $2 \frac{2}{3} \times 2 \frac{3}{4} = 7 \frac{1}{3}$

8. $1 \frac{1}{4} \times 3 \frac{2}{10} = 4$

16. $12 \frac{1}{2} \times 15 \frac{1}{4} = 190 \frac{5}{8}$

9. $5 \frac{2}{5} \times 2 \frac{5}{8} = 14 \frac{7}{40}$

17. $11 \frac{2}{3} \times 17 \frac{3}{4} = 207 \frac{1}{12}$

10. $3 \frac{3}{4} \times 2 \frac{3}{10} = 8 \frac{5}{8}$

18. $5 \frac{2}{8} \times 4 \frac{5}{4} = 27 \frac{9}{16}$

11. $2 \frac{3}{4} \times 4 \frac{4}{5} = 13 \frac{1}{5}$

19. $3 \frac{5}{14} \times 6 \frac{6}{7} = 23 \frac{1}{49}$

12. $7 \frac{2}{7} \times 3 \frac{1}{9} = 22 \frac{2}{3}$

20. $2 \frac{6}{9} \times 4 \frac{7}{9} = 12 \frac{20}{27}$

Name _____

5. $2\frac{3}{5} \times 3\frac{2}{9} = 8\frac{17}{45}$

13. $4\frac{5}{12} \times 2\frac{4}{15} = 10\frac{1}{90}$

6. $4\frac{2}{3} \times 1\frac{3}{8} = 6\frac{5}{12}$

14. $6\frac{5}{11} \times 1\frac{3}{10} = 8\frac{43}{110}$

7. $2\frac{5}{6} \times 3\frac{5}{7} = 10\frac{11}{21}$

15. $2\frac{2}{3} \times 2\frac{3}{4} = 7\frac{1}{3}$

8. $1\frac{1}{4} \times 3\frac{2}{10} = 4$

16. $12\frac{1}{8} \times 15\frac{1}{4} = 184\frac{29}{32}$

9. $5\frac{2}{5} \times 2\frac{5}{8} = 14\frac{7}{40}$

17. $11\frac{2}{3} \times 17\frac{3}{4} = 207\frac{1}{12}$

10. $4\frac{3}{4} \times 2\frac{3}{10} = 10\frac{37}{40}$

18. $5\frac{2}{8} \times 4\frac{5}{4} = 27\frac{9}{16}$

11. $2\frac{3}{4} \times 4\frac{4}{5} = 13\frac{1}{5}$

19. $3\frac{5}{14} \times 6\frac{6}{7} = 23\frac{1}{49}$

12. $7\frac{2}{7} \times 3\frac{2}{9} = 23\frac{10}{21}$

20. $2\frac{6}{9} \times 4\frac{7}{9} = 12\frac{20}{27}$

Name _____

In this activity you will learn how to divide one fraction by another.

$$\frac{1}{3} \div \frac{1}{2} =$$

Dividing fractions is the same as multiplying fractions <u>except</u> for one important step. First, you <u>turn the second fraction in the problem upside down</u> before you multiply.

$$\frac{1}{3} \div \frac{1}{2}$$
$$\downarrow \quad \downarrow$$
$$\frac{1}{3} \times \frac{2}{1}$$

(Second fraction turned upside down and problem sign changed to multiply)

You always turn the second fraction upside down before you multiply. That is the only difference between dividing fractions and multiplying fractions. When you have completed that step, you just multiply the numerators times each other, and the denominators times each other, just as you did in Activity Sheet 15A on multiplying fractions.

Here is the whole process at step at a time:

(1) $\frac{1}{3} \div \frac{1}{4} =$ (1) Turn the second fraction <u>upside down</u>.

(2) $\frac{1}{3} \times \frac{4}{1} =$ (2) <u>Change</u> the <u>sign</u> to <u>multiply</u>.

(3) $\frac{1 \times 4}{3 \times 1} = \frac{4}{3}$ (3) <u>Multiply</u> numerators and denominators.

(4) $\frac{4}{3} = 1\frac{1}{3}$ (4) <u>Reduce</u> the answer if necessary.

Instructions: Divide these fraction problems. Reduce the answers where necessary. Remember the steps you just learned.

_____

1. $\frac{1}{3} \div \frac{1}{2} = \frac{2}{3}$ 3. $\frac{1}{3} \div \frac{1}{5} = 1\frac{2}{3}$

2. $\frac{1}{2} \div \frac{1}{4} = 2$ 4. $\frac{1}{4} \div \frac{1}{7} = 1\frac{3}{4}$

Name _____

5. $\frac{1}{3} \div \frac{1}{6} = 2$

13. $\frac{6}{5} \div \frac{5}{6} = 1\frac{11}{25}$

6. $\frac{1}{5} \div \frac{1}{4} = \frac{4}{5}$

14. $\frac{4}{9} \div \frac{2}{7} = 1\frac{5}{9}$

7. $\frac{1}{2} \div \frac{1}{6} = 3$

15. $\frac{8}{9} \div \frac{3}{5} = 1\frac{13}{27}$

8. $\frac{1}{4} \div \frac{1}{9} = 2\frac{1}{4}$

16. $\frac{2}{5} \div \frac{1}{3} = 1\frac{1}{5}$

9. $\frac{1}{5} \div \frac{1}{3} = \frac{3}{5}$

17. $\frac{7}{8} \div \frac{6}{7} = 1\frac{1}{48}$

10. $\frac{1}{3} \div \frac{1}{4} = 1\frac{1}{3}$

18. $\frac{2}{3} \div \frac{3}{8} = 1\frac{7}{9}$

11. $\frac{3}{5} \div \frac{1}{3} = 1\frac{4}{5}$

19. $\frac{9}{10} \div \frac{8}{9} = 1\frac{1}{80}$

12. $\frac{3}{4} \div \frac{1}{8} = 6$

20. $\frac{3}{7} \div \frac{1}{6} = 2\frac{4}{7}$

1. $\frac{1}{5} \div 5 = \frac{1}{25}$

2. $7 \div \frac{1}{7} = 49$

3. $4 \div \frac{1}{4} = 16$

4. $\frac{17}{36} \div 6 = \frac{17}{216}$

5. $3 \div \frac{5}{16} = 9\frac{3}{5}$

6. $2 \div \frac{12}{25} = 4\frac{1}{6}$

7. $9 \div \frac{14}{43} = 27\frac{9}{14}$

8. $\frac{6}{27} \div 8 = \frac{1}{36}$

9. $\frac{100}{30} \div 10 = \frac{1}{3}$

10. $7 \div \frac{3}{10} = 23\frac{1}{3}$

11. $5 \div \frac{6}{11} = 9\frac{1}{6}$

12. $\frac{7}{9} \div 4 = \frac{7}{36}$

13. $6 \div \frac{4}{13} = 19\frac{1}{2}$

14. $\frac{3}{11} \div 11 = \frac{3}{121}$

15. $17 \div \frac{6}{17} = 48\frac{1}{6}$

16. $\frac{17}{18} \div 21 = \frac{17}{378}$

17. $16 \div \frac{3}{14} = 74\frac{2}{3}$

18. $\frac{3}{4} \div 5 = \frac{3}{20}$

19. $72 \div \frac{3}{18} = 432$

20. $\frac{16}{21} \div 112 = \frac{1}{147}$

448

Name _____

1. $1\frac{1}{3} \div 2\frac{1}{3} = \frac{4}{7}$

2. $1\frac{1}{4} \div 1\frac{1}{5} = 1\frac{1}{24}$

3. $2\frac{1}{5} \div 1\frac{2}{3} = 1\frac{8}{25}$

4. $4\frac{1}{2} \div 3\frac{1}{2} = 1\frac{2}{7}$

5. $2\frac{3}{5} \div 3\frac{2}{10} = \frac{13}{16}$

6. $2\frac{5}{6} \div 1\frac{2}{15} = 2\frac{1}{2}$

7. $4\frac{2}{3} \div 1\frac{2}{9} = 3\frac{9}{11}$

8. $5\frac{3}{5} \div 2\frac{5}{8} = 2\frac{2}{15}$

9. $1\frac{1}{4} \div 3\frac{2}{11} = \frac{11}{28}$

10. $4\frac{3}{4} \div 2\frac{3}{10} = 2\frac{3}{46}$

11. $4\frac{5}{12} \div 2\frac{4}{12} = 1\frac{25}{28}$

12. $7\frac{3}{7} \div 1\frac{1}{7} = 6\frac{1}{2}$

13. $2\frac{3}{4} \div 4\frac{1}{8} = \frac{2}{3}$

14. $10\frac{1}{8} \div 3\frac{3}{10} = 3\frac{3}{44}$

15. $2\frac{3}{8} \div 3\frac{1}{4} = \frac{19}{26}$

16. $6\frac{4}{11} \div 6\frac{8}{22} = 1$

17. $3\frac{1}{4} \div 10\frac{1}{2} = \frac{13}{21}$

18. $16\frac{2}{3} \div 4\frac{1}{6} = 4$

19. $11\frac{2}{3} \div 7\frac{7}{9} = 1\frac{1}{2}$

20. $2\frac{7}{9} \div 4\frac{5}{9} = \frac{25}{41}$

Instructions: Change these fractions into decimals. Round off to three places
when necessary. Do your work on scratch paper but keep it to show to the peer
tutor and teacher.

---

1. $\frac{1}{2}$ = .50 or .5

11. $\frac{2}{5}$ = .40 or .4

2. $\frac{1}{3}$ = .333

12. $\frac{3}{8}$ = .375

3. $\frac{1}{4}$ = .25

13. $\frac{1}{16}$ = .063

4. $\frac{1}{5}$ = .20 or .2

14. $\frac{3}{7}$ = .429

5. $\frac{1}{10}$ = .10 or .1

15. $\frac{5}{6}$ = .833

6. $\frac{1}{100}$ = .01

16. $\frac{7}{8}$ = .875

7. $\frac{1}{1000}$ = .001

17. $\frac{4}{9}$ = .444

8. $\frac{3}{4}$ = .75

18. $\frac{2}{11}$ = .182

9. $\frac{3}{5}$ = .60 or .6

19. $\frac{7}{13}$ = .538

10. $\frac{2}{3}$ = .667

20. $\frac{74}{135}$ = .548

MODULE PREVIEW/REVIEW

DECIMALS

Instructions: Use scratch paper to do the problems below. Then choose the correct answer from the four choices. Mark the letter of the correct answer on your answer sheet.

Example: .23 =

(a) $\frac{23}{10}$ (c) $\frac{1}{23}$

(b) $\frac{100}{230}$ (d) $\frac{23}{100}$

a   b   c   d
|| || || ▮

If a problem is too hard, skip over it and come back to it later on.

---

1.   .416 =

(a) $\frac{416}{1000}$ (c) $\frac{41.6}{1000}$

(b) $\frac{100}{416}$ (d) $\frac{416}{100}$

2. $\frac{17}{1000}$ =

(a) .0017   (c) .17
(b) .017   (d) 1.7

3.   .698 + .735 + .71 =

(a) 1.504   (c) 218.3
(b) 15.041   (d) 2.143

4.   13 + .78 + 54 + .6207 + 19 =

(a) 32.6339   (c) 86.6261
(b) .6371   (d) 87.4007

5.   6.148 + 22.110195 + 7.2 + 5.7 + 3 =

(a) 4415.8195   (c) 44.158195
(b) 2211.6475   (d) 22.116475

6.   .725 - .49 =

(a) .235   (c) 6.76
(b) .676   (d) .4175

7.   .6502 - .39754 =

(a) .25266   (c) .33252
(b) 2.5266   (d) 3.3252

8.   14 - .00731 =

(a) 14.731   (c) 14.00731
(b) 13.99269   (d) 13.731

9.   4.11 - 1.52 =

(a) 3.958   (c) .259
(b) 2.59   (d) 5.63

10.   .25
       x .7

(a) 175   (c) 17.5
(b) 1.75   (d) .175

11.   .248
       x .65

(a) 16.120   (c) 1.6120
(b) .16120   (d) .016120

12.   .18
       x 7

(a) 126   (c) 1.26
(b) 12.6   (d) .126

13.   17.4
     x .07
              (a) .1218   (c) 121.8
              (b) 1.218   (d) 12.18

14.   1.42
     x .64
              (a) 90.88   (c) .9088
              (b) .09088   (d) 9.088

IN THE PROBLEMS BELOW, REMEMBER TO ROUND YOUR ANSWER TO THREE DECIMAL PLACES.

15.   .7 ÷ .63 =
              (a) 1.111   (c) 9.0
              (b) .9   (d) 11.11

18.   .654 ÷ 75 =
              (a) 114.679   (c) .009
              (b) .008   (d) .087

16.   .148 ÷ .723 =
              (a) .204   (c) .107
              (b) 4.885   (d) .205

19.   7.8 ÷ 5.3 =
              (a) .679   (c) 41.34
              (b) 1.472   (d) 14.717

17.   276 ÷ .45 =
              (a) 613.333   (c) .002
              (b) .016   (d) 6.133

20.   6.331 ÷ 63.1 =
              (a) .100   (c) 1.003
              (b) 9.967   (d) .101

Answer Sheet
Module Preview/Review
Decimals

Name _____

	a	b	c	d			a	b	c	d
1.	||	||	||	||		11.	||	||	||	||
2.	||	||	||	||		12.	||	||	||	||
3.	||	||	||	||		13.	||	||	||	||
4.	||	||	||	||		14.	||	||	||	||
5.	||	||	||	||		15.	||	||	||	||
6.	||	||	||	||		16.	||	||	||	||
7.	||	||	||	||		17.	||	||	||	||
8.	||	||	||	||		18.	||	||	||	||
9.	||	||	||	||		19.	||	||	||	||
10.	||	||	||	||		20.	||	||	||	||

DECIMALS PREVIEW/REVIEW
ANSWER KEY & DIAGNOSTIC

	a	b	c	d	IF WRONG, ASSIGN:		a	b	c	d	IF WRONG, ASSIGN:
1.	■	||	||	||	1	11.	||	■	||	||	8
2.	||	■	||	||	1	12.	||	||	■	||	9
3.	||	||	||	■	2	13.	||	■	||	||	10
4.	||	||	||	■	3	14.	||	||	■	||	10
5.	||	||	■	||	4	15.	■	||	||	||	11
6.	■	||	||	||	5	16.	||	||	||	■	11
7.	■	||	||	||	5	17.	■	||	||	||	12
8.	||	■	||	||	6	18.	||	||	■	||	12
9.	||	■	||	||	7	19.	||	■	||	||	13
10.	||	||	||	■	8	20.	■	||	||	||	13

MODULE RECORD SHEET

DECIMALS

OBJECTIVE: Use addition, subtraction, multiplication, and division to find
the correct answer for any problem with decimals.

SAMPLE TEST ITEMS:

1. 2.8 + .752 =

		a	b	c	d
(a) 10.32	(c) 2.152	||	▮	||	||
(b) 3.552	(d) 7.80				

2. 9.45 ÷ .83 =

		a	b	c	d
(a) .088	(c) 11.386	||	||	▮	||
(b) 7.844	(d) 1.139				

INTRODUCTION TO DECIMALS:

Decimals are like fractions. They are parts of a whole. When you
see a decimal point followed by some numbers, those numbers tell you what part
of a whole number you have. Many times, decimals are part of a larger number,
called a decimal mixed number. A decimal mixed number is one or more whole
numbers plus a part of a whole number.

These activity sheets will show you how to add, subtract, multiply,
or divide decimals and decimal mixed numbers. Work through all the activity
sheets that have been circled below. You can check your own work using the check
sheets your teacher has shown you. If you have any questions, ask your teacher.
When you are through with all the activity sheets and are sure you understand
all the rules for decimals, ask to take the Decimals Review.

ACTIVITY SHEETS (Do those that are circled)

1.	Names of Decimal Places and Fractional Equivalents	1A	1B
2.	Adding Decimals to Decimals	2A	2B
3.	Adding Decimals and Whole Numbers	3A	3B
4.	Adding Decimals and Decimal Mixed Numbers	4A	4B
5.	Subtracting Decimals from Decimals	5A	5B
6.	Subtracting Decimals from Whole Numbers	6A	6B
7.	Subtracting Decimals and Decimal Mixed Numbers	7A	7B
8.	Multiplying Decimals Times Decimals	8A	8B
9.	Multiplying Decimals and Whole Numbers	9A	9B
10.	Multiplying Decimals and Mixed Numbers	10A	10B
11.	Dividing Decimals Into Decimals	11A	11B
12.	Performing Division with Decimals and Whole Numbers	12A	12B
13.	Dividing Mixed Decimals Into Each Other	13A	13B

Decimals are a lot like fractions. They are parts of a whole. First, we'll look at how to read decimal places. The table below shows what decimal places look like.

HOW DECIMALS ARE READ		
Decimal	What It Means	Fraction
.1	One-Tenth	$\frac{1}{10}$
.01	One-Hundredth	$\frac{1}{100}$
.001	One-Thousandth	$\frac{1}{1,000}$
.0001	One Ten-Thousandth	$\frac{1}{10,000}$
.00001	One-Hundred-Thousandth	$\frac{1}{100,000}$
.000001	One-Millionth	$\frac{1}{1,000,000}$

You can see that every time you move the <u>decimal point</u> farther to the left, you make a number that is <u>ten times smaller</u> than the one above it. Decimals are ways of writing fractions that have <u>multiples of ten</u> in the denominator.

What if you have a number bigger than 1 in the numerator of your fraction? How do you write this fraction $(\frac{3}{10})$ as a decimal? This is easy. The number in the denominator tells you where to put the decimal point.

$$\frac{3}{10} \longrightarrow ._\_ \qquad \underline{One} \text{ decimal place (the \underline{tenths} place).}$$

The number in the numerator tells you what number to put after the decimal point.

$$\frac{3}{10} \longrightarrow .3 \qquad \underline{Three} \text{ pieces in the decimal tenths} \\ \underline{place.}$$

Here is another example. How would you write this fraction as a decimal?

$$\frac{197}{1000}$$

Decimals
Activity Sheet 1A (Continued)
Names of Decimal Places and
    Fractional Equivalents   Name _____

1. First, figure out how many decimal places you have.

$$\frac{197}{1000} \longrightarrow \;.\underline{}\;\underline{}\;\underline{}$$

Three decimal places
(for tenths, hundredths, and thousandths)

2. Now, put your numerator in the correct place. Move it as far to the right as you can.

$$\frac{197}{1000} \longrightarrow \;.\underline{1}\;\underline{9}\;\underline{7}\quad 197 \text{ pieces out of a thousand.}$$

Here is one last example. How would you write this fraction as a decimal?

$$\frac{24}{10,000}$$

1. First, figure your decimal places.

$$\frac{24}{10,000} \longrightarrow \;.\underline{}\;\underline{}\;\underline{}\;\underline{}$$

Tenths, hundredths, thousandths, and ten thousandths places.

2. Now, put in your numerator. Move it as far to the right as possible.

$$\frac{24}{10,000} \longrightarrow \;.\underline{0}\;\underline{0}\;\underline{2}\;\underline{4}\quad 24 \text{ out of 10,000 pieces.}$$

Remember to put in 0's to fill the extra spaces.

You can turn this process around, too. You can turn decimals into fractions.

$$.64 \;=\; \frac{64}{100}$$

because you have 64 pieces and your decimal goes as far as the hundredths place.

$$.0092 \;=\; \frac{92}{10,000}$$

because you have 92 pieces and your decimal goes as far as the ten-thousandths place.

Decimals
Activity Sheet 1A (Continued)
Names of Decimal Places and
    Fractional Equivalents

Name _____

Instructions: Change the fractions below into decimals, and the decimals below
into fractions. Remember to use the table if you get confused.

1. .17

2. .23

3. .416

4. .1

5. $\frac{1}{10}$

6. $\frac{13}{100}$

7. $\frac{17}{1,000}$

8. $\frac{173}{1,000,000}$

9. $\frac{4381}{10,000}$

10. $\frac{965}{100,000}$

11. .7648

12. .0601

13. .000067

14. .00045

15. .09001

16. .040206

17. $\frac{258}{10,000}$

18. $\frac{3891}{100,000}$

19. $\frac{57}{100}$

20. $\frac{89}{10}$

Adding decimals is just like adding whole numbers except for one difference. You line up the decimal points instead of the numbers.

Example 1:   Add .3 + .75 + .463 + .52 + .78476 + .7 + .4298.

Line up all the
decimal points

```
       .3
       .75
       .463
       .52
       .78476
       .7
       .4298
      _____
       3.94756
```

Now you add, just like you add whole numbers. You can add zeros to fill in the right side if it helps you keep your place.

Example 2:   Add .6 + .53 + .72 + .4.

```
     .60
     .53
     .72
     .40
    _____
     2.25
```

Add zeros if they help you keep your place.

Instructions: Add up these decimal numbers.   Don't forget to line up the decimal points.

1.   .2 + .4 + .6 =

2.   .7 + .5 + .8 =

3.   .4 + .9 + .11 =

Name _____

4. .54 + .32 + .77 =

5. .49 + .26 + .725 =

6. .698 + .735 + .71 =

7. .6542 + .3891 + .153 =

8. .0106 + .02203 + .3101 =

9. .2481 + .4128 + .4261 =

10. .006102 + .000028 + .2132 =

Adding decimals and whole numbers is like adding whole numbers except for two important differences; (1) you must line up the decimal points of the decimal numbers, and (2) you must put all whole numbers to the left of the line of decimal points. The answer's decimal point must also line up with the rest of the decimal points.

Example 1:   Add   3 +.3 +.75 + 63 +.463 + 15

Line up	3.00	Line up decimal points. Now
whole	.3	you can add these up as you
numbers to	.75	would a column of whole numbers.
the left of	63.00	You can add decimal points to
the line of	.463	the whole numbers and zeros to
decimal	15.00	the right side to even it up
points.	82.513	if you want.

Example 2:   Add 12+ .76 +.44 + 156 + .5

```
     12.00  ←
       .76               Add decimals and
       .44               zeroes if it helps you.
     156.00 ←
       .50
     169.70
```

Instructions: Add up these decimal and whole numbers. Don't forget to line up the decimal points.

1.   93 + .46 + .71 + 32 + .21 =

2.   .67 +.56 + .421+ 18 + 227 =

3.   28 + .17 + 93 + .444 + 8 =

4.   .005 + 5 + 55 + .1005 + 5 + .0105 =

5.   .71 + 68 + .438 + 7 + .53 + .1 =

6.   13 + .78 + 54 + .6207 + 19 =

7.   17 + .432 + 23 + .2 + .5187 =

8.   6 + 14 + 8 + .22 + .195 + 48 + .519 =

9.   63 + 78 + .12 + .348 + 12 + .181 =

10.   811 + 64 + .14701 + .518 + 76 + .58365 + 18707 + .2 =

Decimals
Activity Sheet 4A
Adding Decimals and Decimal
   Mixed Numbers   Name _____

   Adding decimals and mixed numbers is like adding whole numbers except for
one difference: You line up the decimal points.

Example 1:   Add 3.3 + .75 + .463 + 72.52 + 6.78476 + .7 + 1.4298 =

       3.3   Now you add these up as
        .75   if they were a column of
        .463   whole numbers. You can
      72.52   add zeros to even up the
       6.78476   right side of the numbers
        .7   if you wish.
       1.4298
      85.94756

Example 2:   Add 2.6 + 17.53 + .72 + .4 =

          2.60 ⟵
         17.53   ⟶ Add zeros if you wish.
           .72
           .40 ⟵
          21.25

Instructions: Add up these decimal and mixed numbers. Do not forget to line
up the decimal points.

1.   7.46 + 4.32 + .57 + .93 =

2.   53.71 + 122.46 + 1.7632 =

3.   12.34 + 5.678 + 90.1234 =

4.   .321 + .0987 + 65.43 + .21 =

463

Name _____

5.   16.17 + .251 + 1.738 + .005 =

6.   11.00003 + 2.110113 + 523.10205 =

7.   648.915 + .76203 + 13.7854 =

8.   .5417 + .432 + .71 + 23.1 + 14.22 =

9.   6.148 + 22.110195 + 7.2 + 5.7 + .3 =

10.   438.11064 + 1.4 + 7.4005 + 61.7482 + 5.1286 + .12 + .7658 + 1.7327 =

Subtracting decimals from decimals is just like subtracting whole numbers from each other except for one difference: you must line up the decimal points of all of the decimal numbers.

Examples: .72 - .46 =

    1.
                        .72   Notice that you borrow the same
                      -.46   way as you do in regular
                       .26   subtraction.

    2.   .89 - .46 =

                        .89
                      -.46
                       .43

    3.   .17 - .0516 =

                      .1700   ⟵
                    -.0516   In subtraction it is a
                     .1184   good idea to put in
                                     zeros to even up the right
                                     side. It helps you to
    4.   .154 - .03 =   subtract.

                      .154 ⟵
                    -.030
                     .124

Instructions: Subtract these decimal number problems. Remember to line up the decimal points and borrow where necessary.

1.   .6 - .2 =

2.   .7 - .5 =

3.   .11 - .09 =

4.   .77 - .54 =

5.   .725 - .49 =

6.   .71 - .698 =

7.   .0106 - .00231 =

8.   .6502 - .39754 =

9.   .003101 - .001919 =

10.   .7321 - .488 =

Name _____

Subtracting decimals from whole numbers is like subtracting whole numbers from each other except for two differences. First, you must line up the decimal points of the decimal numbers (including the answer). Second, you must add zeros after the decimal point of the whole number to even it up with the decimal you are subtracting from it.

Examples:

1. 7 - .54 =

$$
\begin{array}{r}
7.00 \\
- \ .54 \\
\hline
6.46
\end{array}
$$

Notice the zeros and decimal point added to the whole number so that you can borrow and subtract.

2. 17 - .397 =

$$
\begin{array}{r}
17.000 \\
- \ \ .397 \\
\hline
16.603
\end{array}
$$

Instructions: Subtract these decimals and whole numbers. Remember to line up the decimal points. Put decimal points and zeros on the whole numbers. Remember to borrow if necessary.

1. 7 - .32 =

2. 2 - .53 =

3. 4 - .67 =

4. 5 - .23 =

5.   4 - .58 =   11.   13 - .487 =

6.   65 - .715 =   12.   99 - .9876 =

7.   95 - .6817 =   13.   49 - .001011 =

8.   14 - .00731 =   14.   1 - .99999 =

9.   175 - .1789 =   15.   15 - .2103 =

10.   38 - .471 =

Name _____

Subtracting decimal and decimal mixed numbers is like subtracting whole numbers from each other with one difference: you must line up the decimal points of all of the decimal numbers. This rule includes the answer.

Examples:

1. 35.72 - .46 =

$$\begin{array}{r} 35.72 \\ - .46 \\ \hline 35.26 \end{array}$$

Notice that you borrow the same way as you do in regular subtraction.

2. 76.21 - 7.98 =

$$\begin{array}{r} 76.21 \\ - 7.98 \\ \hline 68.23 \end{array}$$

3. 4.18 - .2756 =

$$\begin{array}{r} 4.1800 \\ - .2756 \\ \hline 3.9044 \end{array}$$

In subtraction it is a good idea to put in zeros to even up the right and to have something to subtract from.

Instructions: Subtract these decimal and mixed numbers. Remember to line up the decimal points and borrow where necessary.

1.   7.46 - .32 =

2.   1.76 - .53 =

3.   4.23 - 2.67 =

4.   5.43 - .23 =

5.   4.11 - 1.52 =

6.   65.4376 - 8.7155 =

7.   95.4 - .6817 =

8.   14.06 - .00731 =

9.   175.1 - 166.1789 =

10.   38.54 - 6.471 =

In this lesson you will learn how to multiply decimals times decimals and how to find the place where the decimal point goes in the answer.

Multiplying decimals is just like multiplying whole numbers with one difference: you must find the correct spot for the decimal point in the answer. Finding that spot is very simple. You count the numbers you are multiplying to see how many total digits they have to the right of their decimal points. When you have the total of digits, you go to the answer and count that same number of digits from right to left. Put the decimal point just to the left of the last digit you counted in the answer.

Examples:

1.   .2   1 digit to the right of the decimal point

     x.2   + 1 digit to the right of the decimal point
     ___

     .04   = 2 digits to the right of the decimal point

2.   .246   3 digits to the right of the decimal point
     x .41   + 2 digits to the right of the decimal point
     ____
     246
     984
     _____
     .10086   = 5 digits to the right of the decimal point

3.   .2815   4 digits to the right of the decimal point
     x .436   + 3 digits to the right of the decimal point
     _____
     16890
     8445
     11260
     _____
     .1227340   = 7 digits to the right of the decimal point

Instructions: Multiply these decimals together. Don't forget to count the digits of the multipliers so you can put the answer's decimal point in the correct place. Be sure to show your work.

1.   .1   3.   .5
    x.2   x.7
   ____   ____

2.   .2   4.   .4
    x.3   x.9
   ____   ____

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Decimals
Activity Sheet 8A (Continued)
Multiplying Decimals Times Decimals

Name _____

5. .8
    x.6

6. .12
    x .2

7. .17
    x .3

8. .25
    x .7

9. .39
    x .4

10. .68
     x .5

11. .47
     x .9

12. .99
     x .3

13. .111
     x .4

14. .63
     x.45

15. .248
     x .65

16. .84
     x.66

17. -.421
     x.753

18. .8715
     x .213

19. .7199
     x.4444

20. .371
     x.402

In this lesson you will learn to multiply decimals and whole numbers together.

Multiplying decimals and whole numbers is like multiplying whole numbers with one difference. You must put the decimal point in the correct place in the answer. This is easy to do. Count from right to left to find the number of digits to the right of the decimal points in the problem. Then, when you have the answer, you count from right to left, that same number of digits. Put the decimal point in the answer just to the left of the last digit you counted.

Example:

1.   2   no digits to the right
     x.2   + 1 digit to the right
      .4   = one digit to the right

2.   22   no digits to the right
     x.14   + 2 digits to the right of the decimal
      88
      22   _____
     3.08   = 2 digits to the right of the decimal

Instructions: Multiply these whole numbers and decimals together. Remember to count the digits to the right of the decimal points to get the number of decimal places you need in your answer.

1.   1   4.   .4
   x.1   x 6

2.   .5   5.   9
   x 5   x.8

3.   7   6.   .3
   x.3   x 8

Name _____

7.   9
    x .5

8.   17
    x .4

9.   15
    x .7

10.   18
    x .7

11.   .18
    x 7

12.   15
    x .5

13.   45
    x .16

14.   52
    x .33

15.   99
    x .99

16.   114
    x .23

17.   .175
    x 41

18.   .813
    x 929

19.   .479
    x 252

20.   .643
    x 294

Decimals
Activity Sheet 10A
Multiplying Decimals and Mixed Numbers   Name _____

In this lesson you will learn to multiply decimals and mixed numbers together.

Multiplying decimals and mixed numbers is like multiplying whole numbers with one difference. You must correctly place the decimal point in the answer. This is easily done by counting up all the places to the right of all the decimal points in the problem. Then, in the answer, you count from right to left. When you reach the total number of decimal places, put the decimal point to the left of the last digit you counted.

Examples:

```
1.        2.2       1 decimal place
        x  .3     + 1 decimal place
        ------      -----------------
         .66      = 2 decimal places


2.       82.56      2 decimal places
       x   .97    + 2 decimal places
        ------      -----------------
         57792
        74304
        -------
        80.0832   = 4 decimal places
```

Instructions: Multiply these decimals and mixed numbers. Remember to count the digits so you can put the decimal point in the correct place in the answer. Show your work on a scratch paper.

1.   1.1   4.   6.5
     x .1   x .8

2.   2.3   5.   7.7
     x .5   x .7

3.   4.7   6.   14.3
     x .8   x   .4

475

7.   6.45
      x .7

15.   86.81
      x .76

8.   6.7
      x.48

16.   58.31
      x .29

9.   33.5
      x .35

17.   48.132
      x   .13

10.   17.4
      x .07

18.   8.254
      x .773

11.   3.01
      x .25

19.   6.422
      x .578

12.   8.50
      x .66

20.   1.42
      x .64

13.   83.4
      x .49

14.   74.22
      x .22

In this lesson you will learn to divide decimals into decimals.

Dividing decimals into decimals is just like dividing whole numbers with one difference. You must find where the decimal point goes in the answer.

To figure out where the decimal point goes in the answer, do these steps:

Example: (1) .44 ÷ .22 =

$.22\overline{)\,.44\,}$ ⟵⟶ Change the problem to this form.

$22.\overline{)\,.44\,}$ Move the decimal point of the first number to the right as far as it will go.

$22.\overline{)\,44.\,}$ Move the decimal point of the second number the same number of places as you did for the first number.

$22.\overline{)\,44.\,}$ On the top of the line, put in a new decimal point just above the decimal point that is below the line.

$22.\overline{)\,44.\,}$ with 2. on top and 44. below Now, just divide. In this example, the answer is 2.

Here is another example:

(2)   .784 ÷ .32 =

$.32\overline{)\,.784\,}$ ⟵⟶ Change the form.

$32.\overline{)\,.784\,}$ Move the decimal point of the first number as far to the right as it will go.

$32.\overline{)\,78.4\,}$ Move the decimal point of the second number the same number of spaces to the right.

$32.\overline{)\,78.4\,}$ Put in the new decimal point on top of the line, just above the other decimal point.

$$
\begin{array}{r}
2.45 \\
32.\overline{)\,78.40\,} \\
64. \\
\hline
14.4 \\
12.8 \\
\hline
1.60 \\
1.60 \\
\hline
0
\end{array}
$$
⟵⟶ Divide. You may have to add zeros to this number so you can divide all the way.

Name _____

Instructions: Do these division problems. Remember to move the decimal points over. Round off your answers to three places where necessary. Keep your scratch paper to show to the peer tutor or the teacher.

1. .2 ÷ .4 =

2. .7 ÷ .7 =

3. .9 ÷ .3 =

4. .12 ÷ .4 =

5. .72 ÷ .12 =

6. .63 ÷ .7 =

7. .7 ÷ .63 =

8. .45 ÷ .6 =

9. .5 ÷ .501 =

10. .016 ÷ .08 =

11. .11 ÷ .213 =

12. .78 ÷ .369 =

13. .94 ÷ .63 =

14. .999 ÷ .666 =

15. .462 ÷ .215 =

16. .148 ÷ .723 =

17. .543 ÷ .201 =

18. .42 ÷ .7096 =

19. .1058 ÷ .214 =

20. .616 ÷ .161 =

In this lesson you will learn to divide decimals into whole numbers and whole numbers into decimals.

Dividing decimals and whole numbers is just like dividing whole numbers except for one difference. You must find where the decimal point goes in the answer. This is easy if you remember that <u>every whole number has an imaginary decimal point</u>. You can put as many 0's after a whole number as you want. It doesn't change the whole number.

Here are some ways to write whole numbers:

$$21 \qquad 14.0 \qquad 28.0000 \qquad 762.0$$

Now, it will be easy to find where the decimal point goes when you divide decimals and whole numbers. Look at this problem:

.22 ÷ 2 =

Remember the steps from Activity Sheet 11A.

.22 ÷ 2 =

2./.22 ◄——————— Change the form. Put a decimal point after the whole number so it is easier to work with.

2./.22
↑↑   Move the decimals over if they need to be. Notice that, since your first number is a whole number, <u>the decimals don't have to be moved over.</u>

2./.22   Put in a decimal point above the line.

.11
2./.22   Divide
 2
 02
  2
  0
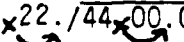
Now, try this problem: 44 ÷ .22 =

.22/44   Change the form

.22/44.000   Put a decimal point and some zeros after the whole number, so you have room to work.

22./44⤸00.0   Move both of the decimal points to the right like you did in Activity Sheet 11A.

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$$22. \overline{)4400.0}$$

Next, put the decimal point for the answer directly above the decimal point for the number being divided into.

$$22. \overline{)4400.0}$$

Now divide.

$$22. \overline{)4400.0} \atop 44 \atop \overline{00}}$$ = 200.

And the answer is 200.

Instructions: Do these division problems. Move the decimals as described above. Round off when necessary. Show your work on a piece of scratch paper.

1. .22 ÷ 2 =

2. 8 ÷ .2 =

3. 6 ÷ .3 =

4. 10 ÷ .5 =

5. 12 ÷ .4 =

6. 66 ÷ .22 =

7. 84 ÷ .12 =

8. .45 ÷ 9 =

9. .37 ÷ 4 =

10. 18 ÷ .7 =

11. 115 ÷ .25 =

12. 169 ÷ .13 =

13. 276 ÷ .45 =

14. 319 ÷ .86 =

15. .415 ÷ 18 =

16. .654 ÷ 75 =

17. 539 ÷ .37 =

18. 405 ÷ .67 =

19. 396 ÷ .20 =

20. 9030 ÷ .547 =

In this lesson you will learn to divide mixed decimals into mixed decimals.

Dividing mixed decimals into mixed decimals is just like dividing whole numbers into each other with one difference. You must find where the decimal point goes in the answer. You can do this like you did in Activity Sheet 11A.

Example: 4.4 ÷ 2.2 =

2.2/‾4‾.‾4‾ ←———————— Change the form of the problem.

2⌃2./‾4‾.‾4‾   Move the first decimal point as far to the
                            right as it will go.

22./‾4‾⌃4‾.‾   Move the second decimal point to the right
                            the same number of spaces.

22./‾4‾4‾.‾   Put the decimal point for the answer
                            directly above the decimal point that
                            is below the line.

            2.
22./‾4‾4‾.‾   Divide.
     44.
     ———
      0

Instructions: Do these division problems. Remember to move the decimal points. Round off your answers where necessary. Show your work on a scratch paper.

1.   2.2 ÷ 4.4 =   7.   7.8 ÷ 5.3 =

2.   1.2 ÷ 3.4 =   8.   14.4 ÷ 1.2 =

3.   9.1 ÷ 3.7 =   9.   2.25 ÷ 1.5 =

4.   1.5 ÷ 1.3 =   10.   6.25 ÷ 2.5 =

5.   6.3 ÷ 8.9 =   11.   74.11 ÷ 2.13 =

6.   4.5 ÷ 6.1 =   12.   5.43 ÷ 2.1 =

13. $1.48 \div 7.23 =$

14. $4.2 \div 90.76 =$

15. $7.4 \div 3.67 =$

16. $4.01 \div 2.11 =$

17. $6.331 \div 63.1 =$

18. $24.5 \div 62.5 =$

19. $61.6 \div 13.2 =$

20. $10.01 \div 1.01 =$

CHECK SHEET
Decimals
Activity Sheet 1A
Names of Decimal Places and
   Fractional Equivalents

1. $\frac{17}{100}$

2. $\frac{23}{100}$

3. $\frac{416}{1000}$

4. $\frac{1}{10}$

5. .1

6. .13

7. .017

8. .000173

9. .4381

10. .00965

11. $\frac{7648}{10,000}$

12. $\frac{601}{10,000}$

13. $\frac{67}{1,000,000}$

14. $\frac{45}{100,000}$

15. $\frac{9001}{100,000}$

16. $\frac{40206}{1,000,000}$

17. .0258

18. .03891

19. .57

20. 8.9

CHECK SHEET
Decimals
Activity Sheet 2A
Adding Decimals to Decimals

1. 1.2

2. 2

3. 1.41

4. 1.63

5. 1.475

6. 2.143

7. 1.1963

8. .34273

9. 1.087

10. .21933

CHECK SHEET
Decimals
Activity Sheet 3A
Adding Decimals and Whole Numbers

1.   126.38

2.   246.651

3.   129.614

4.   65.116

5.   76.778

6.   87.4007

7.   41.1507

8.   76.934

9.   153.649

10.   19659.44866

1.   13.28

2.   177.9332

3.   108.1414

4.   66.0597

5.   18.164

6.   536.21219

7.   663.46243

8.   39.0037

9.   41.458195

10.   516.40644

Decimals
Activity Sheet 5A
Subtracting Decimals from Decimals

1.   .4

2.   .2

3.   .02

4.   .23

5.   .235

6.   .012

7.   .00829

8.   .25266

9.   .001182

10.   .2441

CHECK SHEET

CHECK SHEET
Decimals
Activity Sheet 6A
Subtracting Decimals from Whole Numbers

1.   6.68

2.   1.47

3.   3.33

4.   4.77

5.   3.42

6.   64.285

7.   94.3183

8.   13.99269

9.   174.8211

10.   37.529

11.   12.513

12.   98.0124

13.   48.998989

14.   .00001

15.   14.7897

CHECK SHEET
Decimals
Activity Sheet 7A
Subtracting Decimals and Decimal
    Mixed Numbers

1.   7.14

2.   1.23

3.   1.56

4.   5.2

5.   2.59

6.   56.7221

7.   94.7183

8.   14.05269

9.   8.9211

10. 32.069

Decimals
Activity Sheet 8A
Multiplying Decimals Times Decimals

1.	.02	11.	.423
2.	.06	12.	.297
3.	.35	13.	.0444
4.	.36	14.	.2835
5.	.48	15.	.16120
6.	.024	16.	.5544
7.	.051	17.	.317013
8.	.175	18.	.1856295
9.	.156	19.	.31992356
10.	.340	20.	.149142

CHECK SHEET
Decimals
Activity Sheet 9A
Multiplying Decimals and Whole Numbers

1.	.1	11.	1.26
2.	2.5	12.	7.5
3.	2.1	13.	7.20
4.	2.4	14.	17.16
5.	7.2	15.	98.01
6.	2.4	16.	26.22
7.	4.5	17.	7.175
8.	6.8	18.	755.277
9.	10.5	19.	120.708
10.	12.6	20.	189.042

1.	.11	11.	.7525
2.	1.15	12.	5.6100
3.	3.76	13.	40.866
4.	5.2	14.	16.3284
5.	5.39	15.	65.9756
6.	5.72	16.	16.9099
7.	4.515	17.	6.25716
8.	3.216	18.	6.380342
9.	11.725	19.	3.711916
10.	1.218	20.	.9088

CHECK SHEET
Decimals
Activity Sheet 11A
Dividing Decimals into Decimals

1. .50

2. 1.

3. 3.

4. .30

5. 6.0

6. .90

7. 1.111

8. .75

9. .998

10. .20

11. .516

12. 2.114

13. 1.492

14. 1.50

15. 2.149

16. .205

17. 2.701

18. .592

19. .494⁻

20. 3.826

CHECK SHEET
Decimals
Activity Sheet 12A
Performing Division with Decimals and
     Whole Numbers

1.   .11   11.   460.

2.   40.   12.   1300.

3.   20.   13.   613.333

4.   20.   14.   370.930

5.   30.   15.   .023

6.   300.   16.   .009

7.   700.   17.   1456.757

8.   .050   18.   604.478

9.   .093   19.   1980.

10. 25.714   20.   16,508.226

1. .50

2. .353

3. 2.459

4. 1.154

5. .708

6. .738

7. 1.472

8. 12

9. 1.5

10. 2.5

11. 34.793

12. 2.586

13. .205

14. .046

15. 2.016

16. 1.900

17. .100

18. .392

19. 4.667

20. 9.911

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MODULE PREVIEW/REVIEW
PERCENTS

Instructions: Do the problems below. Choose the correct answer for each
problem. Mark the answer on the answer sheet.

1. $\frac{23}{100}$ =   (a) 100%   (c) 46%
                            (b)   23%   (d) 32%

2. $\frac{19}{100}$ =   (a) 100%   (c) 19%
                            (b)   38%   (d) 91%

3. $\frac{3}{20}$ =   (a)   3%   (c) 12%
                          (b) 20%   (d) 15%

4. $\frac{1}{8}$ =   (a) 12.5%   (c)   8%
                         (b)   1.8 %   (d) 22.1%

5. $\frac{1}{6}$ =   (a) 6.1%   (c)   6%
                         (b) 16.67%   (d) 32.6%

6. 45.8% =   (a) .458   (c) 4.58
                 (b) 45.8   (d) .0458

7. .3542 =   (a) .3542%   (c) 354.2%
                 (b) 3.542%   (d) 35.42%

8. 20% of 80 =   (a) 20   (c) 8.0
                     (b) 16   (d) 10

9. 43% of 52.9   =   (a) 43.529   (c) 20.842
                        (b) 52.943   (d) 22.747

10. 30.2% + 5% + 7.9% =   (a) 38.6%   (c) 114.2%
                                  (b) 158.9%   (d) 43.1%

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Name _____

11.   123.8% - 96.9% =   (a) 26.9%   (c) 220.7%
                                       (b) 96.9%   (d) 269%

12.   13% x 22% =   (a) 2.86%   (c) 35.5%
                               (b) 1.69%   (d) 286%

13.   15% x 6.5% =   (a) 97.5%   (c) 9.75%
                               (b) 0.975%   (d) 2.308%

14.   18% ÷ 3% =   (a) 21%   (c) 6%
                               (b) 15%   (d) 54%

15.   51.2% ÷ 17% =   (a) 34.2%   (c) 87.04%
                               (b) 33.20%   (d) 3.012%

Answer Sheet
Module Preview/Review
Percents   Name _____

1. a □ b □ c □ d □   9. a □ b □ c □ d □

2. a □ b □ c □ d □   10. a □ b □ c □ d □

3. a □ b □ c □ d □   11. a □ b □ c □ d □

4. a □ b □ c □ d □   12. a □ b □ c □ d □

5. a □ b □ c □ d □   13. a □ b □ c □ d □

6. a □ b □ c □ d □   14. a □ b □ c □ d □

7. a □ b □ c □ d □   15. a □ b □ c □ d □

8. a □ b □ c □ d □

ANSWER KEY/DIAGNOSTIC
Module Preview/Review
Percents

Name _____

		IF WRONG, ASSIGN:
1. a □ b ■ c □ d □		1
2. a □ b □ c ■ d □		1
3. a □ b □ c □ d ■		1,2
4. a ■ b □ c □ d □		2
5. a □ b ■ c □ d □		2
6. a ■ b □ c □ d □		3
7. a □ b □ c □ d ■		3
8. a □ b ■ c □ d □		4

		IF WRONG, ASSIGN:
9. a □ b □ c □ d ■		4
10. a □ b □ c □ d ■		5
11. a ■ b □ c □ d □		5
12. a ■ b □ c □ d □		6
13. a □ b ■ c □ d □		6
14. a □ b □ c ■ d □		7
15. a □ b □ c □ d ■		7

MODULE RECORD SHEET
PERCENTS

OBJECTIVE: Use addition, subtraction, multiplication, or division to find the correct answer for any problem with percents. Know the relationship between fractions and percents. Convert percents to decimals and decimals to percents. Find percents of numbers.

SAMPLE TEST ITEMS:

1. $\frac{5}{20}$ = a) 5%   c) 25%
                 b) 20%   d) 4%

a	b	c	d
☐	⊏	■	=

2. 15% of 60 = a) 15   c) 45
               b) 4   d) 9

a	b	c	d
☐	⊏	=	■

INTRODUCTION TO PERCENTS:

Percents are like fractions. They are parts of a whole. The whole is always equal to 100 parts in fractions. If you wrote a percent as a fraction, the denominator would always be 100. So 1% is $\frac{1}{100}$, and 100% is $\frac{100}{100}$ or 1. You can also have percents greater than 100, such as 125%. This represents 1 whole plus $\frac{25}{100}$.

These activity sheets will teach you about percents. Work through all the activity sheets that have been circled below. You can check your own work using the check sheets your teacher has shown you. If you have any questions, ask your teacher. When you are through with all the activity sheets and are sure you understand all the rules for percents, ask to take the Percents Review.

ACTIVITY SHEETS (Do those that are circled)

1.	What Are Percents	1A	1B
2.	Percents and Fractions	2A	2B
3.	Changing Percents to Decimals, and Decimals to Percents	3A	3B
4.	Finding Percents of Numbers	4A	4B
5.	Adding or Subtracting Percents	5A	5B
6.	Multiplying Percents	6A	6B
7.	Dividing Percents	7A	7B

Percents are like fractions. They are parts of a whole. In percents, the whole is always equal to 100 parts. If you wrote a percent as a fraction, the denominator would always be 100. Here are some percents and fractions which mean the same thing.

$$1\% = \frac{1}{100}$$

$$10\% = \frac{10}{100} \longrightarrow = \frac{1}{10}$$

$$23\% = \frac{23}{100}$$

$$88\% = \frac{88}{100} \longrightarrow = \frac{22}{25}$$

Notice that you can <u>reduce</u> some of these fractions. But you can't reduce percents. They are always parts of 100.

The percent is the same as the <u>numerator</u> of the fraction. Let's say you ordered 100 bars of soap from supply. When you went down to pick them up, you got all 100 bars. You got $\frac{100}{100}$ bars of soap, or 100% of the bars.

Let's suppose that you decide to give half of your C-ration to a stray dog. You give the dog $\frac{1}{2}$ of the C-ration. $\frac{1}{2}$ is the same as $\frac{50}{100}$ (remember your work on fractions?). $\frac{50}{100}$ is the same as 50%. So you give the dog 50% of your C-ration.

Instructions: Look at each of these fractions. Decide how you would write them as percents. Then choose the correct answer. Fill in the space for the correct answer on your answer sheet. You may have to change some fractions so the denominator equals 100.

Examples:

1. $\frac{23}{100}$ =   (a) 100%   (c) 46%
                        (b) 23%   (d) 32%

a	b	c	d
☐	■	☐	☐

2. $\frac{9}{25}$ =   (a) 27%   (c) 9%
                      (b) 25%   (d) 36%

a	b	c	d
☐	☐	☐	■

Notice that in this problem, the denominator does not equal 100. So you have to change the fraction first.

$$\frac{9}{25} = \frac{9 \times 4}{25 \times 4} = \frac{36}{100}$$

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Percents
Activity Sheet 1A
What Are Percents?   Name _____

1. $\frac{10}{100}$ =   (a) 1%   (c) 10%
                        (b) 1000%   (d) 100%

2. $\frac{18}{100}$ =   (a) 36%   (c) 100%
                        (b) 18%   (d) 81%

3. $\frac{84}{100}$ =   (a) 84%   (c) 100%
                        (b) 48%   (d) 8.4%

4. $\frac{33}{100}$ =   (a) 13%   (c) 67%
                        (b) 100%   (d) 33%

5. $\frac{15}{50}$ =   (a) 15%   (c) 100%
                        (b) 50%   (d) 30%

6. $\frac{28}{50}$ =   (a) 50%   (c) 28%
                        (b) 56%   (d) 14%

7. $\frac{19}{25}$ =   (a) 76%   (c) 38%
                        (b) 19%   (d) 25%

8. $\frac{13}{20}$ =   (a) 52%   (c) 65%
                        (b) 13%   (d) 26%

9. $\frac{7}{10}$ =   (a) 10%   (c) 70%
                        (b) 7%   (d) 21%

10. $\frac{23}{25}$ =   (a) 46%   (c) 23%
                        (b) 92%   (d) 69%

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Answer Sheet
Percents
Activity Sheet 1A
What Are Percents: Name _____

          a   b   c   d
1.   □   □   □   □

          a   b   c   d
2.   □   □   □   □

          a   b   c   d
3.   □   □   □   □

          a   b   c   d
4.   □   □   □   □

          a   b   c   d
5.   □   □   □   □

          a   b   c   d
6.   □   □   □   □

          a   b   c   d
7.   □   □   □   □

          a   b   c   d
8.   □   □   □   □

          a   b   c   d
9.   □   □   □   □

          a   b   c   d
10.   □   □   □   □

Name _____

Percents are like fractions with a denominator of 100. But there are many common fractions that have a denominator that is <u>not</u> 100. In this lesson, you will learn some percents that mean the same as certain fractions.

Here are some percents and fractions that are easy to learn. These fractions have denominators that <u>can be divided evenly into 100</u>. So you can turn them into percents very easily.

$$\frac{1}{50} = \frac{2}{100} = 2\%, \text{ so } \frac{13}{50} = 13 \times 2\% = 26\%$$

$$\frac{1}{25} = \frac{4}{100} = 4\%, \text{ so } \frac{17}{25} = 17 \times 4\% = 68\%$$

$$\frac{1}{20} = \frac{5}{100} = 5\%, \text{ so } \frac{19}{20} = 19 \times 5\% = 95\%$$

$$\frac{1}{10} = \frac{10}{100} = 10\%, \text{ so } \frac{3}{10} = 3 \times 10\% = 30\%$$

$$\frac{1}{5} = \frac{20}{100} = 20\%, \text{ so } \frac{4}{5} = 4 \times 20\% = 80\%$$

$$\frac{1}{4} = \frac{25}{100} = 25\%, \text{ so } \frac{3}{4} = 3 \times 25\% = 75\%$$

$$\frac{1}{2} = \frac{50}{100} = 50\%, \text{ so } \frac{2}{2} = 2 \times 50\% = 100\%$$

You can see that the way to turn these fractions into percents is:

(1) See how many times the denominator goes into 100. For example, in the fraction $\frac{13}{50}$, you can see that 50 goes into 100, 2 times.

(2) Multiply your answer times the numerator. For the fraction $\frac{13}{50}$, you would multiply 13 x 2.

(3) The answer is your percent. 13 x 2 = 26, or 26%. So $\frac{13}{50}$ = 26%.

Percents
Activity Sheet 2A Continued
Percents and Fractions   Name _____

Many fractions are easy to do because the denominators divide evenly into 100.
But some common fractions do not divide evenly into 100. Sometimes it is easiest
just to <u>memorize</u> the percents for these fractions.

$\frac{1}{8}$ = 12.5%, so $\frac{3}{8}$ = 3 x 12.5% = 37.5%

$\frac{1}{6}$ = 16.67%, so $\frac{5}{6}$ = 5 x 16.67% = 83.35%

$\frac{1}{3}$ = 33.33%, so $\frac{2}{3}$ = 2 x 33.33% = 66.66%

Instructions: Figure out the percent for each of these fractions. Remember
to see if the denominator will divide evenly into 100. If it will not, look
at the table above to help you figure out the percent. Try to memorize the table.

1. $\frac{3}{10}$ =   11. $\frac{7}{10}$ =

2. $\frac{19}{50}$ =   12. $\frac{23}{50}$ =

3. $\frac{7}{25}$ =   13. $\frac{14}{25}$ =

4. $\frac{11}{20}$ =   14. $\frac{13}{20}$ =

5. $\frac{2}{5}$ =   15. $\frac{3}{5}$ =

6. $\frac{1}{4}$ =   16. $\frac{3}{4}$ =

7. $\frac{1}{2}$ =   17. $\frac{7}{8}$ =

8. $\frac{5}{8}$ =   18. $\frac{3}{6}$ =

9. $\frac{1}{6}$ =   19. $\frac{1}{3}$ =

10. $\frac{2}{3}$ =   20. $\frac{5}{6}$ =

Percents
Activity Sheet 3A
Changing Percents to Decimals, and
    Decimals to Percents   Name _____

In this activity you will learn to change percents to decimals, and decimals to percents.

Changing them back and forth is a very easy job.

Example 1   Example 2

1.   38%   72.4%   First you remove the percent sign (%).

2.   .38,   .72,4   Then you move the decimal point to
                                  the <u>left two digits</u>. If there isn't
                                  a decimal point, put a new one in
                                  before the second digit from the end.

3.   .38   .724   This decimal (.38) is equal to 38%
                                  and .724 is equal to 72.4%.

To turn a decimal into a percent, you do the same process, only backward.

1.   .38   .72.4   First, you move the decimal point
                                  to the right two digits. If your
                                  decimal point is at the end now,
                                  you can drop it.

2.   38%   72.4%   Then you put a percent sign on the
                                  right side of your number.

3.   38%   72.4%   This percent (38%) is equal to .38
                                  and 72.4% is equal to .724.

Instructions: Change the percents into decimals and the decimals into percents.

1.   20%   5.   25%

2.   12%   6.   45.8%

3.   70.9%   7.   22.326%

4.   5.3%   8.   .30

Percents
Activity Sheet 3A Continued
Changing Percents to Decimals, and
         Decimals to Percents   Name _____

9.   .09   15.   95.8%

10.   .354   .-   16.   .201

11.   .05   17.   14%

12.   .6592   18.   .1722

13.   .75   19.   100%

14.   .368   20.   .0027

In this activity you will learn to find the percentage of a number.
To find the percentage of a number, you do three steps:

1. Write down the number, and the percent you want. Write it down as
    a multiplication problem.

2. Change the percent to a decimal.

3. Multiply the decimal times your first number.

Here is how the problem works:

Find 20% of 80.

1. 80 x 20% =   Write the number and the percent as a
                                     multiplication problem.

2. 80 x .20 =   Change the percent to a decimal. If you
                                     don't know how, do Activity Sheet 2A.

3. 80 x .20 = 16   Solve the problem.

```
        80
      x.20
      ─────
        00
      160
      ─────
     16.00
```
                                     Sometimes it is easier if you put the problem
                                     in another form.

Here is another example:

F··d 43% of 52.9.

1. 52.9 x 43% =   Write the multiplication problem.

2. 52.9 x .43 =   Change the percent to a decimal.

3. 52.9 x .43 = 22.747   Solve the problem

```
      52.9
    x .43
    ──────
     1587
    2116
    ──────
    22.747
```

Now it's your turn to do some problems.

Instructions: Do these percentage problems. Be sure to write the problem, change percent to a decimal, and multiply. Use scratch paper.

1. Find 10% of 100.

2. Find 35% of 100.

3. Find 50% of 200.

4. Find 50% of 350.

5. Find 45% of 88.

6. Find 60% of 735.

7. Find 40% of 692.

8. Find 22% of 911.

9. Find 96% of 2.3.

10. Find 42% of 88.5.

11. Find 3% of 6.25.

12. Find 14% of 16.43.

13. Find 72% of 51.88.

14. Find 39% of 75.21.

15. Find 86% of 14.12.

16. Find 99% of 82.33.

17. Find 71% of 261.52.

18. Find 27% of 357.66.

19. Find 57% of 18.94.

20. Find 81% of 93.23.

Percents
Activity Sheet 5A
Adding or Subtracting Percents   Name _____

When you add or subtract percents, it is just like doing it with whole
numbers or decimals. Just remember to put a percent sign after the answer.

Instructions: Do these problems. Remember to put percent signs on the answers.
Remember that percents <u>can</u> add up to <u>more</u> than <u>100%.</u>

Example: 30.2% + 5% + 7.9% = 43.1%

1.   2%   8.   16.8%
     + 12%   - 7.2%
     + 50%

2. 27.8% + 9.2% + 11% =   9.   44.4%
                                                -39.5%

3.   14 %
       +18.6%
       +22.2%
       +136.5%   10.-   123.8%
                                                - 96.9%

4.   9% + 12% + 82.1% =

5.   16.5%
       +11.9%
       + 8.4%
       +22.6%
       +17.7%
       + 3.0%

6. 82% - 64% =

7. 19% - 12.2% =

Multiplying percents is easy if you first change the percents to decimals. If you don't know how to change percents to decimals, see Activity Sheet 3A.

You do this kind of problem in steps. Look at this example on how to multiply 13% x 22%.

1.   13% x 22% = --   First, remove the percent signs.

2.   .13 x .22   Move each decimal point two digits
                                  to the left.

3.   .13 x .22 = .0286   Multiply the new problem.
                                  Sometimes it is easier to put
                                  the problem in a different form.

         .13
        x.22
         ‾‾‾‾
          26
          26
        .0286

4.   .02.86   Move the decimal place of the
                                  answer back to the right by two digits.

5.   2.86%   Put in the percent sign.

Instructions: Do these problems. Remember to change the percents to decimals. Then multiply. Then change your answer back to a percent again.

1.   10% x 90% =   6.   17% x 15% =

2.   4% x 80% =   7.   92% x 25% =

3.   40% x 21% =   8.   44.5% x 18.2% =

4.   15% x 6.5% =   9.   83.67% x 12.1% =

5.   28% x 3.3% =   10.   14.8% x 66.6% =

Name _____

Dividing with percents is just like dividing with whole numbers or decimals. All you have to do is forget about the percent signs. Then, when the problem is finished, you put a percent sign on your answer.

Instructions: Divide these problems. Remember to put a percent sign on your answer.

Example 1: 18% ÷ 3% = 6%

$$3\%\overline{)18\%}^{\,6\%}$$ ← Sometimes it is easier to change the form of the problem.

Example 2: 89.4% ÷ 14.3% = 6.252%

$$14.3\%\overline{)89.4\%}^{\,6.2517}$$

```
         6.2517
14.3 % / 89.4 %
         85 8
          3 60
          2 86
            740
            715
            250
            143
           1070
           1001
             69
```

If you have decimals, remember to move the decimal points to the right. You may have to round off your answer at 3 decimal places.

1. 15% ÷ 5% =

2. 14% ÷ 8% =

3. 84% ÷ 13% =

4. 51.2% ÷ 17% =

5. 108% ÷ 10.8% =

6. 48.7% ÷ 8.9% =

7. 96.9% ÷ 8.4% =

8. 85.42% ÷ 16.3% =

9. 126.1% ÷ 1.29% =

10. 91.5% ÷ 8.8% =

Percents
Activity Sheet 1A
What Are Percents: Name _____

	a	b	c	d
1.	☐	☐	■	☐
2.	☐	■	☐	☐
3.	■	☐	☐	☐
4.	☐	☐	☐	■
5.	☐	☐	☐	■
6.	☐	■	☐	☐
7.	■	☐	☐	☐
8.	☐	☐	■	☐
9.	☐	☐	■	☐
10.	☐	■	☐	☐

Activity Sheet 2A
Percents and Fractions

1.	30%	11.	70%
2.	38%	12.	46%
3.	28%	13.	56%
4.	55%	14.	65%
5.	40%	15.	60%
6.	25%	16.	75%
7.	50%	17.	87.5%
8.	62.5%	18.	50.01% or 50%
9.	16.67%	19.	33.33%
10.	66.66%	20.	83.35%

Activity Sheet 3A
Changing Percents to Decimals, and
    Decimals to Percents

1. .20

2. .12

3. .709

4. .053

5. .25

6. .458

7. .22326

8. 30%

9. 9%

10. 35.4%

11. 5%

12. 65.92%

13. 75%

14. 36.8%

15. .958

16. 20.1%

17. .14

18. 17.22%

19. 1.00

20. .27%

CHECK SHEET
Activity Sheet 3A

Activity Sheet 4A
Finding Percents of Numbers

1.	10	11.	.1875
2.	35	12.	2.3002
3.	100	13.	37.3536
4.	175	14.	29.3319
5.	39.6	15.	12.1432
6.	441	16.	81.5067
7.	276.8	17.	185.679
8.	200.42	18.	96.5682
9.	2.208	19.	10.7958
10.	37.17	20.	75.5163

CHECK SHEET
Activity Sheet 5A
Adding or Subtracting Percents

1. 64%

2. 48%

3. 191.3%

4. 103.1%

5. 80.1%

6. 18%

7. 6.8%

8. 9.6%

9. 4.9%

10. 26.9%

Activity Sheet 6A
Multiplying Percents

1. 9%

2. 3.2%

3. 8.4%

4. 0.975%

5. 0.924%

6. 2.55%

7. 23%

8. 8.099%

9. 10.72407%

10. 9.8568%

<u>CHECK SHEET</u>
Activity Sheet 7A
Dividing Percents

1. 3%

2. 1.75%

3. 6.462%

4. 3.012%

5. 10%

6. 5.472%

7. 11.536%

8. 5.240%

9. 97.752%

10. 10.398%

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MODULE PREVIEW/REVIEW
MEASURES

Instructions: Work the problems below on scratch paper. Choose the correct answer. Blacken in the space for the correct answer on your answer sheet.

Example:

   The word <u>inch</u> is abbreviated as:

   (a) mo.   (c) ft.
   (b) yd.   (d) in.

   a   b   c   d
   || || || █

---

1. How do you write six dollars and forty-two cents?

   (a) $6.42   (c) 6.42
   (b) $6.042   (d) $6.00.42

2. $18.95
     X   2.14   (a) $.40550   (c) $40.55
                      (b) 40.55   (d) 40.55¢

3. $.25 /$7.50   (a) 30   (c) $.30
                        (b) $30.00   (d) $3.00

4. 6 meters + 6.80 meters + 5 meters 23 centimeters =

       (a) 17 cm 103 m   (c) 48 cm
       (b) 18.03 cm   (d) 18.03 meters

5. 14 meters ÷ .07 m =

       (a) 20   (c) 2.0 m
       (b) 200   (d) 2,000 cm

6. 6 meters 28 centimeters X 4 =

       (a) 24 m 112 cm   (c) 25 m 12 cm
       (b) 24.112 cm   (d) .2512 meters

Name _____

7.   9 ft 4 in - 2 yds 1 ft 3 in =

      (a)   7 yds 0 in   (c)   8 ft 1 in
      (b)   2 ft 1 in   (d)   2 yds 2 ft 2 in

8.   3 yards 1 foot 1 inch X 11 =

      (a)   33 yds 12 ft 11 in   (c)   33.11 yds
      (b)   51 inches   (d)   36 yds 2 ft 11 in

9.   6 yds 1 ft 2 in ÷ 46 =

      (a)   5 in   (c)   2 yds 1.2 ft
      (b)   3 ft 2 in   (d)   5

10.   1 wk 4 days - 6 days 2 hrs =

      (a)   1 day 2 hrs   (c)   14 days 6 hrs
      (b)   4 days 22 hrs   (d)   2 wks 3 days 2 hrs

11.   4 min 13 sec X 5 =

      (a)   20 min 55 sec   (c)   21.55
      (b)   0.2055 min   (d)   21 min 5 sec

12.   1 hr 10 min 40 sec ÷ 3 min 32 sec =

      (a)   20   (c)   20 hrs
      (b)   20 min   (d)   20 sec

13.   5 gals 1 qt 1 C + 1 gal 3 qts 1 pt 1 C + 2 qts 3 C =

      (a)   6 gals 6 qt 6 C   (c)   7 gals 3 qts 3 C
      (b)   19 gals 0 qts   (d)   52 pints

14.   2 gals 3 qts 1 C X 5 =

      (a)   10.155 C   (c)   14 gals 1 C
      (b)   10 gals 12 qts 5 C (d)   10 gals 15 qts 4 pts 1 C

15.   1 gal 3 qts 1 pt ÷ 10 =

      (a)   3   (c)   3 qts
      (b)   3 C   (d)   3 pts

Answer Sheet
Module Preview/Review
Measures

Name _____

	a	b	c	d			a	b	c	d
1.	‖	‖	‖	‖		9.	‖	‖	‖	‖
2.	‖	‖	‖	‖		10.	‖	‖	‖	‖
3.	‖	‖	‖	‖		11.	‖	‖	‖	‖
4.	‖	‖	‖	‖		12.	‖	‖	‖	‖
5.	‖	‖	‖	‖		13.	‖	‖	‖	‖
6.	‖	‖	‖	‖		14.	‖	‖	‖	‖
7.	‖	‖	‖	‖		15.	‖	‖	‖	‖
8.	‖	‖	‖	‖						

ANSWER KEY/DIAGNOSTIC
Module Preview/Review
Measures   Name _____

	IF WRONG, ASSIGN:				IF WRONG, ASSIGN:

	a	b	c	d	IF WRONG, ASSIGN:		a	b	c	d	IF WRONG, ASSIGN:
1.	▉	‖	‖	‖	1	9.	▉	‖	‖	‖	3
2.	‖	‖	▉	‖	1	10.	‖	▉	‖	‖	4
3.	▉	‖	‖	‖	1	11.	‖	‖	‖	▉	4
4.	‖	‖	‖	▉	2	12.	▉	‖	‖	‖	4
5.	‖	▉	‖	‖	2	13.	‖	‖	▉	‖	5
6.	‖	‖	▉	‖	2	14.	‖	‖	▉	‖	5
7.	‖	▉	‖	‖	3	15.	‖	▉	‖	‖	5
8.	‖	‖	‖	▉	3						

MODULE RECORD SHEET

MEASURES

OBJECTIVE: Know basic facts about dollars and cents, meters, yards, units
of time, and gallons. Find the answers for problems of addition,
subtraction, multiplication, and division of these measures.

SAMPLE TEST ITEMS:

1. 1 m 23 cm + 5 m 82 cm =   a   b   c   d

    (a) 6 m 115 cm   (c) 7.05 cm || || || ▌
    (b) 6.105 cm   (d) 7.05 m

2. 18 hrs 12 min ÷ 6 min =   a   b   c   d

    (a) 3 hrs 2 min   (c) 18.12 || ▌ || ||
    (b) 182   (d) 3.12

INTRODUCTION TO MEASURES:

We use measures every day. We measure money, distance or length, time,
and volume. Most measures are made up of smaller measures. For instance,
gallons are made up of quarts, pints, and cups. All these measures are made
up of different <u>numbers</u> of other measures. For instance, there are four
quarts in a gallon, but there are only three feet in a yard. You need to
know how many smaller measures are in a big measure before you can add, sub-
tract, multiply, or divide.

These activity sheets will teach you about some common measures. Work
through all the activity sheets that have been circled. You can check your
own work using the check sheets your teacher has shown you. If you have any
questions, ask your teacher. When you are through with all of the activity
sheets and are sure you understand all the rules for measures, ask to take the
Measures Review.

<u>ACTIVITY SHEETS (Do those that are circled)</u>

1. Dollars and Cents   1A   1B
2. Meters and Centimeters   2A   2B
3. Yards, Feet, and Inches   3A   3B
4. Units of Time   4A   4B
5. Gallons, Quarts, Pints, and Cups   5A   5B

Everybody knows what money is. You earn money every day. Sometimes you may spend it faster than you would like.

When you buy something with money, you often get change. If you want to make sure you get the right change, you have to be able to add and subtract money. Or if you want to buy several things and you're not sure you have enough money, you have to be able to add up dollars and cents to get the total.

RULE 1: DOLLARS AND CENTS ARE USUALLY WRITTEN WITH A DECIMAL POINT AND TWO DECIMAL PLACES. If you don't understand decimals, see the Decimals Module.

Here is an example: $19.57

                         19 dollars   57 cents

The 1 is in the <u>tens place</u>. It equals   10 dollars
The 9 is in the <u>ones place</u>. It equals   9 dollars
The 5 is in the <u>tenths place</u>. It equals $\frac{5}{10}$ of a dollar
The 7 is in the <u>hundredths place</u>. It equals $\frac{7}{100}$ of a dollar

So we have 10 dollars plus 9 dollars plus $\frac{5}{10}$ of a dollar plus $\frac{7}{100}$ of a dollar. But that's not what we say when we look at $19.57. Instead, we say "nineteen dollars and fifty-seven cents."

The numbers to the <u>left</u> of the decimal point are dollars. And the numbers to the <u>right</u> of the decimal point are cents.

RULE 2: THERE ARE 100 CENTS IN A DOLLAR. That's why you need two decimal places to write the cents. You need the <u>tenths</u> place and the <u>hundredths</u> place. So 57 cents is $\frac{57}{100}$ of a dollar, and it is written .57.

RULE 3: WHEN YOU ADD OR SUBTRACT OR MULTIPLY OR DIVIDE DOLLARS AND CENTS, IT IS JUST LIKE USING DECIMALS. The only difference is that you put a dollar sign ($) in front of the answer. Also, if you need to <u>round</u> your answer, round it to only <u>two places</u>.

RULE 4: WHEN YOU DIVIDE MONEY BY MONEY, YOU DON'T USE A DOLLAR SIGN FOR THE ANSWER. WHEN YOU DIVIDE MONEY BY A REGULAR NUMBER, USE A DOLLAR SIGN IN THE ANSWER.

Example: $18.00 ÷ $6.00 = 3
   BUT $18.00 ÷ 6 = $3.00
If you have a remainder, round it to only <u>two places</u>.

Name _____

RULE 5: YOU NEED TO KNOW THE NAMES OF ALL THE COINS, AND HOW MANY OF THEM
ARE IN A DOLLAR.

  1¢ = a penny = 1 cent. There are 100 pennies in $1.00
  5¢ = a nickel = 5 cents. There are 20 nickels in $1.00
 10¢ = a dime = 10 cents. There are 10 dimes in $1.00
 25¢ = a quarter = 25 cents. There are 4 quarters in $1.00
 50¢ = a half-dollar = 50 cents. There are 2 half-dollars in $1.00

INSTRUCTIONS: Use the rules you learned to answer the questions below. Do
Part A first, then read the new instructions and do Part B.

PART A: Choose the correct answer to each question. Fill in the blank under
the correct letter in the answer column.

1. How many __dollars__ are in $23.85?

        (a)   twenty   (c)   twenty-three
        (b)   three   (d)   eighty-five

2. How many __cents__ are in $23.85?

        (a)   five   (c)   eight
        (b)   three   (d)   eighty-five

3. How do you write six dollars and
      forty-two cents?

        (a) $6.42   (c)   6.42
        (b) $6.042   (d) $6.00.42

4. How do you write 5¢?

        (a)   .05   (c)   .5
        (b) $.05   (d) $0.5

5. How do you write 3 quarters plus
      2 dimes plus 1 nickel plus 1 penny?

        (a) $56.   (c) $100.1
        (b) $.77   (d) $1.01

529

Name _____

6. How many cents are in a dollar?

       (a) 10   (c) 1000

       (b) 100   (d) 1

a   b   c   d

7. How many nickels does it take
    to equal 1 quarter?

       (a) 20   (c) 100

       (b) 4   (d) 5

a   b   c   d

8. How much is (50¢) - (10¢) (5¢)

       (a) $.60   (c) $.25

       (b) $.35   (d) $.65

a   b   c   d

PART B: Figure out these problems. Remember to put a dollar sign in front of your answer, except in division problems where you divide money by money. Remember to round your answer to <u>two places</u> if you need to.

9. $1.43 + $8.12 =

10. $19.82
    + $101.95

11. $11.41
    + $ 2.86
    +   .93
    + $296.14

12. $9.96 - $7.11 =

13. $204.92
    -   .63

Name _____

14. $7.78
    -$5.42

15. $6.12
    X .03

16. $18.92
    X 2.14

17. $76.98
    X 8.10

18. $3.33 ÷ $.03 =

19. $.25 /$7.50

20. 1.17 /$191.91

You know that one dollar equals 100 cents. There is another measure that is divided into 100 parts. It is called a <u>meter</u>.

A meter is a length which is a little more than a yard. The meter is used in Europe. You see it used in the USA more often than it used to be, too. It is often used in the Army.

Here are three rules for meters:

<u>RULE 1: A METER IS DIVIDED INTO 100 CENTIMETERS.</u> The meter is written <u>m</u>, and the centimeter is written <u>cm</u>. So 1m 23cm equals 1 meter and 23 centimeters. You could also write it 1.23m. This means 1 meter and $\frac{23}{100}$ of a meter, or 23cm.

<u>RULE 2: YOU CAN ADD, SUBTRACT, AND MULTIPLY METERS JUST LIKE DECIMALS.</u> Just write the numbers like decimals. For example:

$$1m\ 23cm\ +\ 5m\ 82cm\ =$$

$$1.23m\ +\ 5.82m\qquad\qquad =\qquad\qquad \text{Change the meters to decimal form}$$

$$1.23m\ +\ 5.82m\ =\ 7.05m\qquad \text{Do the problem}$$

Your answer, 7.05m, means 7 meters and 5 centimeters.

<u>RULE 3: WHEN YOU DIVIDE METERS BY METERS, YOUR ANSWER IS JUST A NUMBER. BUT WHEN YOU DIVIDE METERS BY REGULAR NUMBERS, YOUR ANSWER IS IN METERS.</u>

Example: 15.30m ÷ 45cm = 34
<u>but</u>   15.30m ÷ 45   = 34cm

INSTRUCTIONS: Do these problems with meters and centimeters. Then choose the correct answer from the answer choices. Mark the correct space on your answer sheet.

1.   8 meters and 62 centimeters =

      (a) 8.062m   (c) 8620cm
      (b) 8.62m   (d) 8.062cm

2.   14.95m =

      (a) 1.495cm   (c) 14 meters and 95 centimeters
      (b) 14cm 95m   (d) 149.5cm

3.   6 meters + 6.80 meters + 5 meters 23 centimeters =

     (a) 17cm 103m   (c) 48cm
     (b) 18.03cm   (d) 18.03 meters

4.   33cm ÷ 3 =

     (a) 3 meters   (c) .11cm
     (b) 11cm   (d) 11 meters

5.   14 meters ÷ .07m =

     (a) 200   (c) 2.0m
     (b) 20   (d) 2,000cm

6.   12 meters - 8m 92cm =

     (a) 20m 92cm   (c) 3 meters and 92 centimeters
     (b) $3 \frac{8}{10}$ m   (d) 3.08m

7.   .90m X 20 =

     (a) 18 meters   (c) 18cm
     (b) .18 meters   (d) 1 meter 8cm

8.   1.80m
    X2.40

     (a) 4.032m   (c) 43.2m
     (b) 4 meters 32 centimeters   (d) 432m

9.   6 meters 18 centimeters X 4 =

     (a) 24m 72cm   (c) 24cm 72m
     (b) 24.72cm   (d) .2472m

10. 19 meters ÷ 40cm =

     (a) 47m 5cm   (c) .475 meters
     (b) 475cm   (d) 47.5

ANSWER SHEET
Measures
Activity Sheet 2A
Meters and Centimeters

Name _____

	a	b	c	d
1.	||	||	||	||
2.	||	||	||	||
3.	||	||	||	||
4.	||	||	||	||
5.	||	||	||	||
6.	||	||	||	||
7.	||	||	||	||
8.	||	||	||	||
9.	||	||	||	||
10.	||	||	||	||

We measure short distances in yards, feet, and inches. There are 12 inches in 1 foot. There are 3 feet in 1 yard. So you can see that there are 12 x 3 or 36 inches in 1 yard.

You can _abbreviate_ yards, feet, and inches. Here are some ways:

yards	=	yds			2 yards	=	2yds	
feet	=	ft	=	'	2 feet	=	2ft	= 2'
inches	=	in	= ⌐"		2 inches =	2in	= 2"

Learn to use these abbreviations.

When you add, subtract, multiply, or divide with yards, feet, and inches, you may have to _borrow_ or to _carry_. You learned how to do this in whole numbers. Here are some examples of how to do problems with yards, feet, and inches.

Example 1: Addition

Add 2 feet 10 inches and 1 foot 9 inches.

```
    2 ft    10 in
  + 1 ft     9 in
```
First, line up the problem.

```
    2 ft    ┌─────┐
  + 1 ft    │10 in│
            │ 9 in│
            │19 in│
            └─────┘
         ↖    ⤸
          1 ft. 7 in.
```
Next, add the inches. If your answer is more than 12, then change it to _feet_ and _inches_. Then, carry the _feet_ part to the _feet_ side of the problem.

```
    2 ft    10 in
  + 1 ft     9 in
            ───────
            19 in
  + 1 ft     ↓↓
  ─────     1 ft 7 in
    4 ft  ↙
```
Add together the feet. Remember to add the foot you carried.

```
    4 ft      7 in
     ↓         ↓
```
Your answer is in feet and inches.

```
  1 yd 1 ft    7 in
     ↖_____
```
If you have at least 3 feet, you can also change the feet into _yards_. But you don't _have_ to do this; you can also leave the answer in feet and inches.

Example 2: Subtraction

Subtract 1 foot 6 inches from 1 yd 5 inches.

```
  1 yd 5 in   =   3 ft 5 in          Write out the problem.
- 1 ft 6 in     - 1 ft 6 in          Change the yards to feet.
```

```
  2 ft 17 in                         You may have to borrow a foot
- 1 ft  6 in                         and change it to 12 inches
  1 ft 11 in                         so you can subtract.
```

```
  1 ft   11 in                       Your answer is in feet and inches.
```

Example 3: Multiplication

You don't multiply feet times feet, but you can multiply feet or inches by other numbers.

Multiply 2 yds 1 ft 3 in X 4.

```
     2 yds      1 ft     3 in         Write out the problem.
  X                         4
     8 yds      4 ft    12 in
```

Multiply each part separately.
Don't carry yet!

```
     8 yds      4 ft    12 in
                        1 ft 0 in
```

Change the inches into feet if you can, and add them to the feet column.

```
     8 yds      5 ft     0 in
              1 yd 2 ft  0 in
```

Change the feet to yards if you can, and add them to the yards column.

```
     9 yds      2 ft     0 in
```

Your answer is in yards, feet, and inches. You can also have an answer in feet and inches, if you want. Just change the yards to feet and add the extra feet.

```
    27 ft  +  2 ft      0 in
         29 ft          0 in
```

Example 4: Division

You can divide yards, feet, and inches by other yards, feet and inches.
Or you can divide them by any other kinds of numbers.

Divide 6 yds 2 ft 3 in by 9 inches.

9 in / $\overline{6 \text{ yds } 2 \text{ ft } 3 \text{ in}}$ Write the problem.

6 X 36 = 216   2 X 12 = 24

Change all the yards and feet to
inches. There are 36" in 1 yd,
and 12" in 1 ft.

9 in / $\overline{216 \text{ in} + 24 \text{ in} + 3 \text{ in}}$

Add together all the inches.

```
        27
9 in / 243 in.
        18
        63
        63
         0
```

Divide the problem.

Remember, the answer is just
a number, not yards or feet or
inches. But if you divide yards,
feet, and inches by another number,
the answer should be in yards,
feet and inches.

12 yds 2 ft 10 in ÷ 2 =

          6 yds 1 ft 5 in

INSTRUCTIONS: Do these problems with yards, feet and inches. Remember the
examples above. Borrow or carry whenever you need to.

1.   8 ft 6 in + 1 yd 2 ft 2 in =

2.   4 yds 2 ft 9 in + 3'7" =

3.   6'8" + 6 yds 1 ft 4 in + 7 feet 6 inches =

4.   9 ft 4 in - 2 yds 1 ft 3 in =

5.   12'5" - 6 feet 8 inches =

6.   4 yds 2 feet 11 inches - 13'9" =

7.   14 feet 4 inches
      X   4
      _____

8.   3 yards 1 foot 1 inch
      X   11
      _____

9.   6'5"
      X 14
      _____

10.   3'4" ÷ 4 inches =

11.   2 yards 2 feet 2 inches ÷ 1'2" =

12.   6 yds 1 ft 2 in ÷ 46 =

Sometimes you may have to add, subtract, multiply or divide units of time. This is easy to do if you remember to borrow and carry. You can "borrow" small units of time from larger ones. Or you can put several small units of time together to make a larger one, then "carry" the answer over to the larger units of time.

Here are the most common units of time which you will use in computing:

1 year	(1 yr)	=	12 months	= 52 weeks	= 365 days
1 month	(1 mo)	=	28 to 31 days.	Some months are longer than others.	
1 week	(1 wk)	=	7 days		
1 day		=	24 hours		
1 hour	(1 hr)	=	60 minutes		
1 minute	(1 min)	=	60 seconds		

You learned how to add, subtract, multiply, and divide measures in Activity Sheet 3A. You practiced with yards, feet, and inches. You can use the same rules to solve problems with units of time. Here is a quick "recap" of the rules:

Addition:

    2 yrs 4 mos + 1 yr 9 mos =

        2 yrs   4 mos   Line up the problem.
     + 1 yr   9 mos   Add each column.
        3 yrs   13 mos   Change smaller units to
          ↓   ↓   - larger units if possible
                                    (that is, carry.)
        3 yrs   (1 yr) 1 mo

        4 yrs   1 mo

Subtraction:

    2 hrs 15 min - 45 min =   Line up the problem.
                                       Borrow a larger time unit if
       2 hrs 15 min   1 hr 75 min you have to, and change it to
    -        45 min   = -   45 min   smaller units. Subtract all
                            1 hr 30 min the columns, from right to left.

Multiplication: 1 week 6 days X 3 =

       1 week   6 days   Line up the problem. Multiply
    X   3   each column separately. Change
       3 weeks 18 days   the smaller units to larger ones
          ↓   ↓   if you can. Carry the new units
       3 wks   (2 wks) + 4 days   over to the larger units' column.

           5 wks   4 days

Division: 12 min 20 sec ÷ 2 min 28 sec

2 min 28 sec /‾1‾2‾ ‾m‾i‾n‾ ‾2‾0‾ ‾s‾e‾c‾   Write the problem.

Change all the parts to the smallest
unit of time. Divide. Remember, if
you divide time by time your answer
is <u>just a number</u>, not a unit of time.

            5
148 sec /‾7‾4‾0‾ ‾s‾e‾c‾
          740
          ‾‾‾
            0

But if you divide time by a regular
number, your answer should be in
units of time.
Example: 12 min 20 sec ÷ 37 = 20 <u>sec</u>.

INSTRUCTIONS: Do these problems. Remember to borrow or carry when you need to.
Look at the chart and the examples if you need help.

1.   1 wk 4 days 15 hrs + 6 days 11 hrs =

2.   2 wks 1 day + 3 wks 6 days 1 hr + 5 days 12 hrs =

3.   1 day 23 min + 12 hrs 15 min + 48 min 24 sec + 59 sec =

4.   1 day 6 hrs 12 min - 5 hrs 19 min =

5.   1 wk 4 days - 6 days 2 hrs =

6.   1 yr 5 mos - 11 mos =

Name _____

7.   16 wks 5 days X 7 =

8.   4 min 13 sec X 5 =

9.   6 days 8 hrs 15 min 47 sec X 11 =

10. 18 hrs 12 min ÷ 6 min =

11. 7 wks 7 days ÷ 1 wk 1 day =

12. 1 hr 10 min 40 sec ÷ 4   =

In the United States, many things are measured in <u>gallons</u>, <u>quarts</u>, <u>pints</u>, and <u>cups</u>. Once you know how many cups are in a pint or a quart, for instance, then you can compute using these measures. Here is a chart of the measures:

    1 gallon = 1 gal = 4 quarts
    1 quart   = 1 qt   = 2 pints or 4 cups
    1 pint   = 1 pt   = 2 cups
    1 cup   = 1 C

If you worked Activity Sheets 3A and 4A, then you know how to add, subtract, multiply, or divide measures of <u>length</u> or <u>time</u>. You can use the same rules to compute with measures of <u>volume</u> (gallons, quarts, pints, and cups). Just remember to <u>borrow</u> from larger units if you need to, and <u>carry</u> groups of smaller units over to the larger units. Remember the <u>special</u> rules for division.

Instructions: Do these problems. Remember to borrow or carry if you need to. If you have trouble, go back to Activity Sheets 3A and 4A.

1.   1 gal 3 qts + 2 gals 2 qts =

2.   8 gals 3 qts 1 pt + 2 qts 1 pt 1 C =

3.   5 gals 1 qt 1 C + 1 gal 3 qts 1 pt 1 C + 2 qts 3 C =

4.   3 qts 1 C - 2 qts 1 pt =

5.   1 gal 2 qts 1 pt - 1 qt 3 C =

6.   5 gals 1 qt 1 pt 1 C - 3 gals 3 qts 1 C =

7.   2 gals 3 qts 1 C X 5 =

8.   1 gal 2 qts 1 pt 1 C X 14 =

9.   4 gals 1 qt 3 C   X   9   =

10.   8 gals 2 qts 1 pt   ÷   1 qt 2 C   =

11.   3 gals 1 qt 1 pt 1 C   ÷   ┼ qt 1 C   =

12.   1 gal 3 qts 1 pt   ÷   10   =

1. c

2. d

3. a

4. b

5. d

6. b

7. d

8. b

9. $9.55

10. $121.77

11. $311.34

12. $2.85

13. $204.29

14. $2.36

15. $.18

16. $40.49

17. $623.54

18. 111

19. 30

20. $164.03

Name _____

	a	b	c	d
1.	‖	▌	‖	‖
2.	‖	‖	▌	‖
3.	‖	‖	‖	▌
4.	‖	▌	‖	‖
5.	▌	‖	‖	‖
6.	‖	‖	‖	▌
7.	▌	‖	‖	‖
8.	‖	▌	‖	‖
9.	▌	‖	‖	‖
10.	‖	‖	‖	▌

545

1. 4 yds 1 ft 8 in or 13 ft 8 in

2. 6 yds 4 in or 18 ft 4 in

3. 11yds 6in or 33ft 6in

4. 2 ft 1 in

5. 5ft 9in or 1yd 2ft 9in

6. 1ft 2in

7. 57ft 4in or 19yds 4in

8. 36yds 2ft 11in or 110ft 11in

9. 89 ft 10 in or 29 yds 2 ft 10 in

10. 10

11. 7

12. 5in

1. 2 wks 4 days 2 hrs

2. 6 wks 5 days 13 hrs

3. 1 day 13 hrs 27 min 23 sec

4. 1 day 53 min

5. 4 days 22 hrs

6. 6 mos

7. 117 wks or 2 yrs 13 wks

8. 21 min 5 sec

9. 69 days 18 hrs 53 min 37 sec or 9 wks 6 days 18 hrs 53 min 37 sec

10. 182

11. 7

12. 17 min 40 sec

CHECK SHEET
Measures
Activity Sheet 5A
Gallons, Quarts, Pints, Cups

1. 4 gals 1 qt

2. 9 gals 2 qts 1 C

3. 7 gals 3 qts 1 pt 1 C   or   7 gals 3 qts 3 C

4. 1 pt 1 C or 3 C

5. 1 gal 1 pt 1 C   or   1 gal 3 C

6. 1 gal 2 qt 1 pt   or   1 gal 2 qt 2C

7. 14 gals 1 C

8. 23 gals 2 qt 1 pt   or   23 gals 2 qt 2C

9. 39 gal 3 qts 3 C or 39 gal 3 qts 1 pt 1 C

10. 23

11. 11

12. 1 pt 1 C or 3 C

MODULE PREVIEW
STORY PROBLEMS

Instructions: In the story problems that follow, you are given four choices of answers. Work the problem. Then mark the answer sheet with the correct answer.

EXAMPLE: Pete went to the PX with $17.80 in his pocket. He bought a shirt for $11.60, a cap for $2.10 and a magazine for $1.25. How much money did Pete have left?

A. $2.05   C. $15.95
B. $14.95   D. $2.85

($11.60 + $2.10 + $1.25 = $14.95.)

A	B	C	D
0	0	0	●

$17.80
- 14.95
$ 2.85 left

1. Carter had $10.00. He spent $4.30 on ribbons, $1.19 on chow, and 75¢ on a phone call. What sum did he spend?

   a. $3.76   c. $16.24
   b. $6.24   D. $5.24

2. The azimuth to Target A is 50 degrees. The azimuth to Target B is 95 degrees. What is the difference in the azimuths between the targets?

   a. 145°   c. 50°
   b. 45°   d. 35°

3. SGT Moore had $17.59 to last until pay day. After buying a record, he had $7.58 left. How much did the record cost?

   a. $25.17   c. $10.99
   b. $ 7.58   d. $10.01

4. How many inches are there in 52 feet?

   a. 156 inches   c. 624 inches
   b. 520 inches   d. 1872 inches

5. You need to rent a car for a PCS. It costs $23 a day, without mileage. How much does it cost, without mileage charges, to rent a car for the month of June? (June has 30 days.)

   a. $690   c. $260
   b. $960   d. $469

6. During a postwide U.S. Savings Bond drive, $50,125 worth of $25 bonds were sold. How many bonds were sold?

   a. 2005   c. 25
   b. 205   d. $205

7. Several men are in the overweight program. One weighs 237 lbs. The other men weigh 216, 243, and 197. What is their total weight?

   a. 839 lbs.   c. 893 lbs.
   b. 983 lbs.   d. 793 lbs.

8. If seventeen camouflage helmet covers cost $35.02 at the military clothing store, find the cost of one.

   a. $20   c. $2.16
   b. $2.60   d. $2.06

9. A soldier bought three shirts at the PX at $5.85 each, 7 handkerchiefs at 79¢ each, and two ties at $3.83. He gave the clerk two twenty dollar bills. How much change did he receive?

   a. $10.47   c. $9.26
   b. $30.74   d. $9.62

10. A mess sergeant needed 50 lbs. of meat and 30 loaves of bread. How many eggs would he need for 62 men if he gives each man 2 eggs?

    a. 284   c. 142
    b. 124   d. 163

11. If it takes 1 hr. 31 minutes to load 5325 rounds of ammunition, how long will it take to load 10,650 rounds?

    a. 2 hrs.   c. 1 hr. 31 min.
    b. 3 hrs. 2 min. d. 62 minutes

12. A seven-man detail dug a trench 15 feet long and 3 feet deep. Another detail of 8 men worked for 2 hours and added 11 feet to the length of the trench. If 40 feet of this trench are needed, how much is left to dig?

    a. 30 ft.   c. 45 ft.
    b. 56 ft.   d. 14 ft.

13. Sergeant Avila drove to the Post Service Station and made the following purchases: 3 quarts of oil at 79¢ a quart, 10 gallons of gasoline at $1.14 a gallon, 2 cases of soda at $5.27 each and a package of 2 screw drivers at $1.68. How much change will he receive if he gives the clerk 3 $10 bills?

    a. $ 4.01   c. $2.59
    b. $25.73   d. $3.87

14. SFC Hidalgo has $2397 in the Credit Union. If he receives 7½% interest on his money, how much money will he have at the end of the year? Round off to the nearest cent.

    a. $1797.77   c. $2756.77
    b. $2251.50   d. $2576.78

15. The local appliance store was having a sale on VCRs. A brand name model cost $548 originally. It had already been marked down 5%. Now it was discounted another 15% of the original price. How much would SGT Caldon have to pay if he buys it during the sale?

    a. $119.40   c. $438.40
    b. $109.60   d. $463.70

16. If 1/3 of a yard of parachute cloth costs $6.00, how much will one yard cost?

    a. $18.00   c. $1.80
    b. $2.00   d. $20.00

17. How many pieces of metal, each 3/8 of an inch long, can be cut from a metal strip 72 inches long?

    a. 72   c. 27
    b. 27 inches   d. 192

18. SGT Gadson borrowed $1200 from the Credit Union. The rate of interest is 12%. How much interest will he owe in the first year?

    a. $120   c. $1344
    b. $144   d. $1212

19. LT Shannon has $1500 in the Credit Union. The rate of interest on his savings is 9%. How much will Shannon have at the end of the year?

    a. $1635   c. $1590
    b. $1365   d. $135

Module Preview
Story Problems
Answer Sheet

Name _____

	a	b	c	d
1.	0	0	0	0
2.	0	0	0	0
3.	0	0	0	0
4.	0	0	0	0
5.	0	0	0	0
6.	0	0	0	0
7.	0	0	0	0
8	0	0	0	0
9.	0	0	0	0
10.	0	0	0	0
11.	0	0	0	0
12.	0	0	0	0
13.	0	0	0	0
14.	0	0	0	0
15.	0	0	0	0
16.	0	0	0	0
17.	0	0	0	0
18.	0	0	0	0
19.	0	0	0	0

MODULE PREVIEW
STORY PROBLEMS
ANSWER KEY/DIAGNOSTIC

	a	b	c	d		If missed, do these Activity Sheets
1.	O	●	O	O	1.	1, 2, 3, 12, 13
2.	O	●	O	O	2.	1, 2, 4, 13
3.	O	O	O	●	3.	1, 2, 4, 12,13
4.	O	O	●	O	4.	1, 2, 5, 12, 13
5.	●	O	O	O	5.	1, 2, 5, 13
6.	●	O	O	O	6.	1, 2, 6, 12, 13
7.	O	O	●	O	7.	1, 2, 3, 13
8.	O	O	O	●	8.	1, 2, 6, 12, 13
9.	O	O	●	O	9.	1, 2, 8, 12, 13
10.	O	●	O	O	10.	1, 2, 5, 13
11.	O	●	O	O	11.	1, 2, 7, 12, 13
12.	O	O	O	●	12.	1, 2, 7, 12, 13
13.	●	O	O	O	13.	1, 2, 8, 12, 13
14.	O	O	O	●	14.	1, 2, 7, 10, 13
15.	O	O	●	O	15.	1, 2, 7, 10, 13
16.	●	O	O	O	16.	1, 2, 7, 9, 13
17.	O	O	O	●	17.	1, 2, 9, 13
18.	O	●	O	O	18.	1, 2, 11, 13
19.	●	O	O	O	19.	1, 2, 11, 13

MODULE RECORD SHEET
STORY PROBLEMS

OBJECTIVE: Use addition, subtraction, multiplication, or division to find
the correct answer for any story problem.

SAMPLE TEST ITEM:

Pete went to the PX with $17.80 in his pocket. He bought a shirt for
$11.60, a cap for $2.10, and a magazine for $1.25. How much money
did Pete have left?

A.	$ 2.05	C.	$15.95
B.	$14.95	D.	$ 2.85

A   B   C   D

0   0   0   ●

INTRODUCTION TO STORY PROBLEMS:

Story problems are just math problems written in words. They don't
use signs to tell you to add, subtract, multiply, or divide. Instead, you
figure out what to do by looking for key words. In story problems, you may
have to work with whole numbers, fractions, percents, decimals, or measures.
You may have to do more than one thing.

These activity sheets will show you how to work story problems. Work
through all the activity sheets that have been circled. You can check your
own work using the check sheets your teacher has shown you. If you have any
questions, ask your teacher. When you are through with all the activity
sheets and are sure you understand all the rules for story problems, ask to
take the Story Problems Review.

ACTIVITY SHEETS (Do those that are circled)

1.	Key Words	1A	1B
2.	Understanding Story Problems	2A	2B
3.	Addition Problems	3A	3B
4.	Subtraction Problems	4A	4B
5.	Multiplication Problems	5A	5B
6.	Division Problems	6A	6B
7.	Two-Step Problems	7A	7B
8.	Three-Step Problems	8A	8B
9.	Problems with Fractions	9A	9B
10.	Problems with Percents	10A	10B
11.	Problems with Interest	11A	11B
12.	Problems with Measures	12A	12B
13.	Mixed Problems	13A	13B

MODULE REVIEW

STORY PROBLEMS

Now you have completed all of the required activity sheets on Story Problems. This is a review of those activity sheets.

Instructions: You are given four choices of answer on the answer sheet. Work the problem. Mark the correct answer. If none of the answers matches your answer, mark NONE OF THESE.

Example: The army bought $2\frac{3}{4}$ tons of scrap metal at $216 a ton.
How much did it pay for the metal?

$$2\frac{3}{4} \times \$216 = \frac{11}{4} \times \frac{\overset{54}{\cancel{216}}}{1} = \boxed{\$594}$$

- 0   a $432
- 0   b $494
- 0   c $549
- 0   d $378
- ●   e   None of these

1. SFC Hidalgo has $2397 in the credit union. If he received $7\frac{1}{2}$% interest on his money for 1 year, how much money will he have at the end of the year? Round off to the nearest cent.

- 0   a $1797.77
- 0   b $2251.50
- 0   c $2756.77
- 0   d $2576.78
- 0   e   None of these

2. The local appliance store was having a sale on VCRs. A brand name model cost $548 originally. It had already been marked down 5%. Now it was discounted another 15% off the original price. How much would SGT Whigum have to pay if he buys it during the sale?

- 0   f $119.40
- 0   g $438.40
- 0   h $463.70
- 0   j $109.60
- 0   k   None of these

3. A 7-man detail dug a trench 15 feet long by 3 feet wide. Another detail of
    8 men worked for 2 hours and added 11 feet to the length. If the sarge
    wanted 40 feet of trench, how much is left to dig?

                        0   a   14 ft.
                        0   b   30 ft.
                        0   c   45 ft.
                        0   d   56 ft.
                        0   e   None of these

4. Fernandez's gross bi-monthly salary is $596.00. Uncle Sam takes out $\frac{1}{5}$ for

    taxes and Social Security. What is his take-home salary, to the nearest dollar?

                        0   f $119
                        0   g $377
                        0   h $596
                        0   j $737
                        0   k   None of these

5. The government bought 36 acres for more government quarters. Each four-plex
    will be on a $\frac{3}{4}$ acre lot. How many sets of quarters can be built on the land?

                        0   a   27
                        0   b   18
                        0   c   48
                        0   d   36
                        0   e   None of these

6. SP4 Smiley has a VISA bill of $683.00 this month. He pays 1½% interest
    if he fails to pay the balance in full each month. Money is tight this
    month so Smiley lets the VISA bill slide and makes no payment. How much
    interest will he owe, to the nearest cent?

                        0   f $10.25
                        0   g $6.83
                        0   h $683.00
                        0   j $693.25
                        0   h   None of these

7. Rojas bought 12 towels for himself at a PX sale. He wanted to share them
    equally with his 3 buddies. How many towels did each man get?

                        0   a   36
                        0   b   4
                        0   c   12
                        0   d   3
                        0   e   None of these

8. For a company picnic, two-thirds of the men brought a date. If there were
    30 men in the company, how many brought a date?

                    O   f   30
                    O   g   10
                    O   h   20
                    O   j   15
                    O   k   None of these

9. SGT X weighs in at 270 in January. SGT Y weighs in at 250 the same month.
    Six months later, X weighs 205 and Y weighs 195. Who lost the most weight
    and how much more?

                    O   a   X, 65 lbs.
                    O   b   X, 20 lbs.
                    O   c   Y, 20 lbs.
                    O   d   Z, 10 lbs.
                    O   e   None of these

10. Shannon hit 7 targets on the range. Carter hit 3 times as many. How many
    targets did Carter hit?

                    O   f   seven
                    O   g   ten
                    O   h   four
                    O   j   twelve
                    O   k   none of these

ANSWER SHEET
Module Review
Story Problems   Name _____

1. a   O   8.   f   O
    b   O   g   O
    c   O   h   O
    d   O   j   O
    e   None of these   k   None of these

2. f   O   9.   a   O
    g   O   b   O
    h   O   c   O
    j   O   d   O
    k   None of these   e   None of these

3. a   O   10. f   O
    b   O   g   O
    c   O   h   O
    d   O   j   O
    e   None of these   k   None of these

4. f   O
    g   O
    h   O
    j   O
    k   None of these

5. a   O
    b   O
    c   O
    d   O
    e   None of these

6. f   O
    g   O
    h   O
    j   O
    k   None of these

7. a   O
    b   O
    c   O
    d   O
    e   None of these

If missed, do these:

1.   a   0   1.   1, 2, 3, 5, 7, 11, 13
      b   0
      c   0
      d   ●
      e   0

2.   f   0   2.   1, 2, 3, 5, 7, 10, 13
      g   ●
      h   0
      j   0
      k   0

3.   a   ●   3.   1, 2, 3, 4, 7, 12, 13
      b   0
      c   0
      d   0
      e   0

4.   f   0   4.   1, 2, 4, 6, 7, 9, 13
      g   ⊃
      h   0
      j   0
      k   ●

5.   a   0   5.   1, 2, 6, 9, 13
      b   0
      c   ●
      d   0
      e   0

6.   f   ●   6.   1, 2, 10, 11
      g   0
      h   0
      j   0
      k   0

7.   a   0   7.   1, 2, 3, 6, 7, 13
      b   0
      c   0
      d   ●
      e   0

8.   f   O   8.   1, 2, 9, 13
        g   O
        h   ●
        j   O
        k   O

9.   a   O   9.   1, 2, 4, 8, 13
        b   O
        c   O
        d   O
        e   ●

10.   f   O   10.   1, 2, 5, 12, 13
        g   O
        h   O
        j   O
        k   ●

In the math modules you have completed before this, you learned that certain <u>signs</u> tell you how to work a problem.

$$13 + 7 = \underline{\hspace{1.5cm}}$$

The first symbol (+) means to <u>add</u>. The second symbol (=) means <u>equal to</u>. If you know what the symbols mean, you can work the problem with no trouble.

$$13 + 7 = 20$$

Now you are ready to learn about <u>story problems</u>. They are different. They are written in everyday language. There are no math signs in story problems. However, if you read the problem carefully, you know that the problem is a math problem. Then it is up to you to decide how to solve it. To do this, you must first decide what arithmetic <u>process</u> to use: addition, subtraction, multiplication, or division. Those are your only choices!

To help you decide which arithmetic process to use, keep in mind that every problem has KEY WORDS that will tell you whether to add, subtract, multiply, or divide.

Use <u>addition</u> if the problem uses words or phrases like these:

1. Find the <u>SUM</u> . . . .
2. What is the <u>TOTAL</u> . . . .
3. Determine the cost of <u>ALL</u> . . . .
4. What is the <u>COMBINED</u> . . . .
5. How much <u>ALTOGETHER</u> . . . .
6. How many <u>JOINED</u> . . . .
7. She has three <u>AND</u> I have one . . . .
8. How many did he <u>HAVE IN ALL</u> . . . .

Use <u>subtraction</u> if the problem uses phrases or words like these:

1. What is the <u>DIFFERENCE</u> . . . .
2. How much <u>MORE</u> . . . .
3. How much <u>LESS</u> . . . .
4. She <u>BORROWED</u> . . . .
5. They <u>QUIT</u> . . . .
6. I <u>DELIVERED</u> . . . .
7. How much is <u>LEFT</u> . . . .
8. He <u>SOLD</u> . . . .
9. We <u>PAID</u> . . . .

10. You <u>REMOVED</u> . . . .

11. She <u>ATE</u> . . . .

12. What is the <u>NET</u> price . . . .

13. The price was <u>REDUCED</u> . . . .

Use <u>multiplication</u> if the problem uses phrases like these:

1. Find the cost of <u>TEN ITEMS</u> if the cost of <u>ONE ITEM</u> is . . . .

2. She has three <u>TIMES AS MANY</u> . . . .

3. One-third <u>OF</u> a group . . . .

   (Note: This tells you to <u>multiply by a fraction</u>.)

4. If <u>EACH</u> item costs . . . ., how much will <u>ALL</u> cost?

5. If the <u>MONTHLY</u> cost is . . . ., find the <u>ANNUAL</u> cost . . . .

Use <u>division</u> if the problem uses phrases like these:

1. How much is <u>EACH</u> . . . .

2. Find the cost <u>PER</u> . . . .

3. He wants to <u>SHARE EQUALLY</u> . . . .

4. I <u>SPLIT</u> the money . . . .

5. She <u>DIVIDED</u> the candy . . . .

6. Find the cost of <u>ONE</u> . . . .

7. The <u>AVERAGE</u> score . . . .

   (Note: For <u>average</u>, you have to <u>add</u> first, then <u>divide</u>.)

Remember: No matter how difficult a problem may seem, there are only <u>FOUR</u> arithmetic processes to choose from.

Instructions: Underline the KEY WORD or words in the parts of the problems below that tell you which process to use. Then blacken the circle that tells which process you would use to solve the problem.

Example:

	Add	Sub	Mult	Div
Find the price of <u>one</u> shirt if 3 shirts cost $21.	0	0	0	●
1. They decided to share the profit equally.	0	0	0	0
2. What is the combined income of the Roberts family?	0	0	0	0
3. Jones has three times as many dependents as Smith.	0	0	0	0

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Name _____

		Add	Sub	Mult	Div
4.	Five members quit the rifle team.	0	0	0	0
5.	How many canteens did he have in all?	0	0	0	0
6.	One-half of the new recruits had high school diplomas.	0	0	0	0
7.	Three women joined the court martial panel.	0	0	0	0
8.	He delivered seven of the documents to his commander.	0	0	0	0
9.	The cost was divided among the soldiers present.	0	0	0	0
10.	PFC Rowell sold seven tickets to his friends.	0	0	0	0
11.	The recruit paid him the money promptly.	0	0	0	0
12.	The sum of their paychecks was $982.00.	0	0	0	0
13.	They split the reward.	0	0	0	0
14.	Fisher had three times as many records as Jones.	0	0	0	0
15.	Kluzinski removed seven of the books from the cart.	0	0	0	0

Key Words are important in solving story problems. Whenever you work with a story problem in math, you have to translate every day language into math language. Sometimes figuring out what to do in a word problem is hard. However, there are certain steps you can follow. These steps will make working with story problems easier for you.

STEP 1: Read the problem. Get a mental picture of what is going on. Do you understand what the problem is telling you?

STEP 2: Decide what facts are given in the problem. Write down the known facts. This will help you understand how they are related.

STEP 3: Decide what the problem is asking you to find.

STEP 4: Decide which facts to use to answer the question.

STEP 5: Decide which math operation to use. Study the facts and decide if you should add, subtract, multiply or divide. Find the answer.

STEP 6: Ask yourself if your answer seems reasonable. Check your answer, the unknown fact, against the known facts in the problem.

Example: SGT Andrews worked 23 hours on his part-time job last week. His rate of pay was $6 per hour. Find his pay for the week.

Solve this problem step by step:

Step 1: The problem tells you Andrews' hourly rate of pay and the number of hours he worked.

Step 2: The given facts are (1) Andrews worked 23 hours and (2) his rate of pay was $6 per hour.

Step 3: The problem is asking for Andrews' total wages for the week.

Step 4: The facts to use are (1) 23 hours and (2) $6 per hour.

Step 5: You must MULTIPLY:

hours worked X rate per hour = total pay
     23   X $6.00   = $138.00 (answer)

Step 6. Check your answer.

$138 ÷ 23 = $6.00

Story Problems
Activity Sheet 2A
Understanding Story Problems   Name _____

Instructions: Solve the following problems step by step.

1. PVT Harrison drives a truck. On Tuesday he drove 70 miles in 2 hours.
    On Thursday, he drove 114 miles in 3 hours. On Friday, he drove 44 miles
    in 1 hour. How many miles did Harrison drive in the 3 days?

        Step 1:

        Step 2:

        Step 3:

        Step 4:

        Step 5:

        Step 6:

2. It takes Ralph 5 minutes to get to work. It takes Terry 8 minutes to get
    to work. It takes Hal 19 minutes to get to work. How many minutes faster
    does Ralph get to work than Terry ?

        Step 1:

        Step 2:

        Step 3:

        Step 4:

        Step 5:

        Step 6:

You have learned that finding KEY WORDS is important in solving story problems. You have also learned that you must ask yourself certain questions to find out how to solve a story problem. Now you are ready to solve some story problems!

In Addition story problems you will find words like SUM, TOTAL, ALL, COMBINED, ALTOGETHER, JOINED, and HAVE IN ALL. It is important to read the problem to get a mental picture of what is happening. It is telling you a very brief story. You must use the facts you are given to correctly answer it. Then you must label your answer correctly.

Example:

The mess sergeant ordered 3 cases of tomato soup, 4 cases of chicken soup, and 7 cases of beef soup for his dining hall. How many cases of soup did he order altogether?

(Altogether is your key word. It tells you to ADD: 3 cases + 4 cases + 7 cases = 14 CASES. It is important that you label the answer correctly! Your answer is 14 Cases.)

Instructions: Underline the KEY WORDS in the following problems. Create a mental picture of what the problem is telling you. Compute your answer. SHOW your work on this sheet! Mark the circle of the correct answer.

Example:

I paid $1.70 for a fatigue cap, $6.95 for a shirt, and $6.95 for trousers. How much did I pay altogether?

$1.70
 6.95   a. $15.60   c. 15.60
 6.95   b. $17.60   d. $14.60
$15.60

a	b	c	d
●	0	0	0

"A" is the correct choice. "C" is the same number, but it has no dollar sign. It is not labeled correctly.

1. On Tuesday, five soldiers joined the track team. Seven soldiers joined on Wednesday and 8 more on Friday. How many soldiers joined the team that week?

     a. 19   c. 13
     b. 20   d. 15

a	b	c	d
0	0	0	0

2. In June, Tuaui had extra duty 3 days. Waite had extra duty two days.
   Green and Fisher each had two days of extra duty. What was the combined
   amount of extra duty for the four men that month?

				e	f	g	h
e.	7	g.	9 days	0	0	0	0
f.	7 days	h.	6 days				

3. Forty seven hundred people live in Carmel. Monterey has a population
   of 27,000. Salinas has 80,500 people. What is the total population of
   the three cities?

				a	b	c	d
a.	107,970	c.	154,500	0	0	0	0
b.	102,200	d.	112,200				

4. SP4 Williams's map shows three ridges surrounded by valleys. The
   elevations of the ridges are 400 meters, 600 meters and 300 meters.
   Altogether, what is the elevation of the ridges?

				e	f	g	h
e.	1300 meters	g.	900 meters	0	0	0	0
f.	700 meters	h.	130 meters				

5. SGT Anderson won $3.75 in a poker game. Sergeants Branch and
   Davis each won $4.90. How much did they win in all?

				a	b	c	d
a.	$8.65	c.	$13.55	0	0	0	0
b.	6.05	d.	$12.55				

6. Company A has 5 women soldiers. Company B has 8. The other companies
   have none. How many women soldiers does the battalion have in all?

				e	f	g	h
e.	13	g.	5	0	0	0	0
f.	3	h.	8				

7. Carter had $10.00. He spent $4.30 on ribbons, $1.19 on chow, and
   75¢ on a phone call. What sum did he spent?

				a	b	c	d
a.	$3.76	c.	$16.24	0	0	0	0
b.	$6.24	d.	5.24				

8. Three men are in the overweight program. One weighs 237 lbs. The
   other two weigh 216 lbs. and 243 lbs. What is the total weight?

				e	f	g	h
e.	796 lbs.	g.	596 lbs.	0	0	0	0
f.	686 lbs.	h.	696 lbs.				

9. Last year SGT Handley received several bonuses in addition to his basic
    pay. A reenlistment bonus was $1,050. A promotion bonus was $729.
    His incentive pay totaled $1,296. What was the combined amount of his
    bonuses for the year?

		a	b	c	d
a. $14,075	c. $9,636	0	0	0	0
b. 2,075	d. $3,075				

10. The terrain became steeper as the squad marched north. The first ridge
     was 325 meters. Next was higher ridge, 475 meters higher. Finally the
     squad reached a hilltop that was 620 meters higher than the last ridge.
     How many meters did the elevation increase altogether?

		e	f	g	h
e. 1420 meters	g. 295 meters	0	0	0	0
f. 1095 meters	h. 800 meters				

Subtraction problems are easy to recognize. The key word <u>DIFFERENCE</u> means you subtract. Other key words which tell you to subtract are <u>BORROWED</u>, <u>LEFT</u>, <u>PAID</u>, <u>FEWER</u>, <u>LESS</u>, <u>DELIVERED</u>, <u>REMOVED</u>, <u>QUIT</u>, <u>ATE</u>, <u>REDUCED</u> and <u>HOW MUCH (or MANY) MORE</u>. Two other words, <u>GROSS</u> and <u>NET</u>, are often used in subtraction problems. <u>GROSS</u> refers to a total before any deductions are taken from it. <u>NET</u> is the amount that is left after the deductions are taken.

Example: PFC Goin gets a <u>gross</u> salary of $600 per month. Uncle Sam takes out $189 for taxes and social security. What is his <u>net</u> monthly salary?

$$\begin{array}{r} \$600 \ \text{-- gross salary} \\ - \ 189 \ \text{-- deductions} \\ \hline \$411 \ \text{-- net salary} \end{array}$$

Instructions: Underline the KEY words in the following problems. Create a mental picture of what the problem is telling you. Remember to mentally "cross out" any information you don't need! Compute your answer. Show your work on this sheet. Mark the circle of the correct answer.

Example: Company A has 17 boxes of ammo. Company B has 6 boxes. Company C has 12 boxes. <u>How many more</u> boxes of ammo does Company C have than Company B?

				a	b	c	d
12 boxes	a.	11 boxes	**c.** 5 boxes	0	●	0	0
- 6 boxes	b.	6 boxes	d. 35 boxes				
6 boxes							

Note: You don't need the information about Company A; it is extra.

1. The azimuth to Target A is 50 degrees. The azimuth to Target B is 95 degrees. What is the difference in the azimuths between the two targets?

			a	b	c	d
a. 145°	c. 50°		0	0	0	0
b. 45°	d. 35°					

2. The population of Fort Ord is 31,496. The population of Monterey is 27,000. The Presidio of Monterey has a population of 4315. How many fewer people does the Presidio have than Fort Ord?

			e	f	g	h
e. 27,181	g. 22,685		0	0	0	0
f. 35,811	h. 31,315					

3. Fort Ord has 28,221 dependents living on post. Dependents living off post
    total 16,145. How many more dependents live on post?

    a. 44,361   c. 11,076   a   b   c   d
    b. 12,086   d. 12,076   0   0   0   0

4. The military payroll in FY81 at Fort Ord totaled $284 million. The military
    payroll in FY82 will total $323 million. How much less military payroll
    was there in FY81?

                                        e   f   g   h
    e. $49 million   g. $39 million
    f. $607 million   h. $139 million 0   0   0   0

5. The size of Fort Ord is 193,154 acres. If the Army sold 7,155 acres, how
    many would remain?

    a. 200,309 acres   c. 186,009 acres   a   b   c   d
    b. 185,999 acres   d. 186,999 acres   0   0   0   0

6. PFC Gardner had thirty-six messages to deliver for his commander. He
    delivered 27 in the morning. How many messages were left to deliver in
    the afternoon?

                                        e   f   g   h
    e. 9   g. 53
    f. 63   h. 8   0   0   0   0

7. The flying club had 17 members. Three of them quit. How many members
    are now in the club?

                                        a   b   c   d
    a. 4   c. 14
    b. 20   d. 13   0   0   0   0

8. SGT Moore had $17.59 to last until payday. After buying a record, he
    had $7.58 left. How much did the record cost?

                                        e   f   g   h
    e. $25.17   g. 10.99
    f. $ 7.58   h. $10.01   0   0   0   0

9. The NCO Club had to sell 290 chances on a new car in order to break even.
    The Club sold only 189 of them. How many still had to be sold?

		a	b	c	d
a. 479	c. 91	0	0	0	0
b. 111	d. 101				

10. My gross salary is $12,970 per year. Deductions of taxes ($3700) and social
    security ($720) total $4420. What is my net salary for the year?

		e	f	g	h
e. $4130	g. $17,390	0	0	0	0
f. $8550	h. $ 9530				

> The key words <u>TIMES AS MANY</u> tell you that you need to multiply in story
> problems. However, the key words <u>PRODUCT</u> and <u>TIMES</u> are not often used. Instead
> of key words, watch for <u>situations</u> that mean to multiply. For example, you may
> be told the price of one item. Then you are asked to find the price of several
> items. Or, you may be told how far someone can drive a car on one gallon of gas.
> Then you are asked to find how far he can drive the car on several gallons of gas.
>
>   Example: SGT Kluzinski has a new diesel car. He can drive his car
>   35 miles on one gallon of diesel fuel. How far can he drive
>   with 15 gallons of fuel?
>
>   35 miles
>   x 15
>   ─────────
>   175
>   35
>   ─────────
>   525 <u>miles</u>:   Remember to label your answer correctly!

Instructions: Underline any KEY words you find in the following problems.
Decide what the problem is asking you. Remember to mentally "cross out" any
part of the problem that you don't need! Compute your answer. Show your work
on this sheet! Mark the circle of the correct answer.

    Example: Find the cost <u>of</u> <u>ten</u> uniforms if <u>one</u> costs $15.00

        a. $1.50   c. $15.00   a   b   c   d
        b. $150.00   d. $1′ ′.00   0   ●   0   0

                  $15.00
                x   10
                ─────────
                $150.00

1. You are zeroing your weapon on a 25 meter range using the standard sight.
    Turning the drum one notch clockwise will move the impact of the bullet
    7 millimeters to the right. How many millimeters will the round move if
    you turn the drum 5 notches?

                                               a   b   c   d
        a. 35 mm   c. .12 mm   0   0   0   0
        b. 3.5 mm   d. 25 mm

2. You need to rent a car for a PCS. It costs $23 a day, without mileage.
    How much does it cost, without mileage charges, to rent a car for the
    month of June (30 days)?

                                               e   f   g   h
        e. $690   g. $260   0   0   0   0
        f. $960   h. $469

Name _____

3. Marshall School has 3 times as many transfer students as Stilwell School. Stilwell has 27 transfer students. How many transfer students does Marshall have?

			a	b	c	d
a. 30		c. 9	0	0	0	0
b. 72		d. 81				

4. Our classroom has 4 rows of desks with six desks in each row. How many desks are in our room?

			e	f	g	h
e. 10		g. 30	0	0	0	0
f. 24		h. 18				

5. The football stadium at Fort Ord is where the Peaches and Herb concert will be held. If Morale Support charges $6 for each ticket, how much money will Morale Support take in if 2200 tickets are sold?

			a	b	c	d
a. $1200		c. $13,200	0	0	0	0
b. $1320		d. 2,800				

6. SP4 Irvinski pays $13 for a gallon of paint. He buys nine gallons. How much does he pay altogether?

			e	f	g	h
e. $117		g. $171	0	0	0	0
f. 21		h. $ 97				

7. How much will nine lensatic compasses cost at $25 each?

			a	b	c	d
a. $252		c. $200	0	0	0	0
b. $125		d. $225				

Name _____

8. How many inches are there in 52 feet?

e. 156 inches	g. 624 inches		
f. 520 inches	h. 1872 inches		

e	f	g	h
0	0	0	0

9. If a rug is 9 feet wide and 17 feet long, how many square feet of area (length times width) are there in the rug?

a. 153 ft^2	c. 52 ft^2
b. 26 ft^2	d. 144 ft^2

a	b	c	d
0	0	0	0

10. Serrano received 7 frogs last week. Williams received six times as many. How many frogs did Williams have?

e. 24	g. 42
f. 13	h. 49

e	f	g	h
0	0	0	0

In division story problems, the words SPLIT, SHARE, SHARE EQUALLY, AVERAGE, DIVIDED, and PER usually mean to divide. Another key word, QUOTIENT, is almost never used.

Example: Jake picked 85 pounds of apples on his day off. He wants to split the apples equally among his five friends. How many pounds will each person get?

$$\begin{array}{r} 17 \text{ pounds of apples} \\ 5{\overline{\smash{)}85 \text{ pounds}}} \\ \underline{5} \\ 35 \\ \underline{35} \end{array}$$

Other situations may also mean to divide. For example, you may be told the price of several items. Then you are asked to find the price of one item.

Example: PFC Andrea paid $12 for six camouflage helmet covers. Find the price of one cover.

$$\begin{array}{r} \$\,2 \text{ each} \\ 6{\overline{\smash{)}\$12}} \end{array}$$

Instructions: Underline any key words you find in the following problems. Create a mental picture of what the problem is telling you. Remember to mentally "cross out" any information you don't need! Compute your answer. Show your work on this sheet! Mark the circle of the correct answer.

Example: Rivas took three parts of the ASVAB. His scores totalled 279. What was his average on each part?

a. 31   c. 300
b. 93   d.   97

a	b	c	d
0	●	0	0

$$\begin{array}{r} 93 \\ 3{\overline{\smash{)}279}} \\ \underline{27} \\ 9 \\ \underline{9} \end{array}$$

1. SGT Wellman is spending his leave with his grandmother who lives 385 miles away. If he averages 55 miles per hour on the trip, how long will the driving time be?

a. 7 miles   c. 6½ hours
b. 70 hrs.   d. 7 hrs.

a	b	c	d
0	0	0	0

2. During a postwide U.S. Savings Bond drive, $50,125 worth of $25 bonds were
    sold. Find the number of bonds sold.

e.	2005	g.	25	e	f	g	h
f.	205	h.	$205	0	0	0	0

3. PFC Carter makes $12,120 per year. What is his monthly salary?

i.	$1000	k.	$1100	i	j	k	l
j.	$1010	l.	$11,000	0	0	0	0

4. In order to deliver 21,500 pounds of C-rations to the field, a vehicle
    had to make five trips. How many pounds were carried on each trip?

a.	43,000 lbs.	c.	4300 lbs.	a	b	c	d
b.	3400 lbs.	d.	107,500 lbs.	0	0	0	0

5. The profits of the bazaar were divided evenly among the Red Cross, Boy
    Scouts, Girl Scouts, and ACS. If the profits totalled $6300, how much
    did each group get?

e.	$1575	g.	$1507	e	f	g	h
f.	$25,000	h.	$157.50	0	0	0	0

6. If seventeen camouflage helmet covers cost $35.02 at the military clothing
    store, find the cost of one.

i.	$20	k.	$2.60	i	j	k	l
j.	$26	l.	$2.06	0	0	0	0

7. PVT Jones won $369 at bingo the other night. He decided to split it
    evenly among his two buddies and himself. How much money did each man receive?

    a. $184.50   c. $12.30 | a | b | c | d |
    b. $123.00   d. $369.00 |---|---|---|---|
                                       | 0 | 0 | 0 | 0 |

8. How many feet of barbed wire do you have in 792 inches?

    e. 7.92 ft.   g. 66 ft. | e | f | g | h |
    f. 22 ft.   h. 79 ft. |---|---|---|---|
                                       | 0 | 0 | 0 | 0 |

9. SGT Evans wants to split a board 102 inches long into 6 equal pieces.
    How long will each piece be?

    i. 17 in.   k. 16 in. | i | j | k | l |
    j. 18 in.   l. 19 in. |---|---|---|---|
                                       | 0 | 0 | 0 | 0 |

10. If it takes 11 gallons of gasoline for a truck to go 121 miles, how
    many miles will it go on one gallon?

    e. 132 miles   g. 10 miles | e | f | g | h |
    f. 1331 miles   h. 11 miles |---|---|---|---|
                                       | 0 | 0 | 0 | 0 |

You have learned that you must decide if you add, subtract, multiply or divide in a story problem. Key Words help you decide what to do. A mental picture can also help. In the problems you have done so far, you only had ONE THING TO DO. Now you will learn how to do story problems that need TWO THINGS (or STEPS) to be done to get the answer.

Example: SGT Shannon had seven bills to pay before the end of the week. He paid 2 on Tuesday and 3 on Wednesday. How many bills did he have left to pay?

Can you find the answer if you do only ONE STEP (add, subtract, multiply, or divide)? NO, you must do TWO STEPS:

ADD $\longrightarrow$ SUBTRACT

```
  2 - Tuesday              7 - to begin with
+ 3 - Wednesday          - 5 - he wrote on Tuesday and Wednesday
  5                        2 bills left to pay
```

OR

SUBTRACT   SUBTRACT

```
  7 - to begin with        5 - left
- 2 - Tuesday            - 3 - Wednesday
  5 left                   2 bills left to pay
```

Either way you get the same answer!

You don't always ADD and SUBTRACT in TWO-STEP story problems. Here are some of the steps you might need to use:

ADD $\longrightarrow$ SUBTRACT

ADD $\longrightarrow$ DIVIDE

ADD $\longrightarrow$ MULTIPLY

SUBTRACT $\longrightarrow$ ADD

SUBTRACT $\longrightarrow$ MULTIPLY

SUBTRACT $\longrightarrow$ DIVIDE

MULTIPLY $\longrightarrow$ SUBTRACT

MULTIPLY $\longrightarrow$ DIVIDE

DIVIDE $\longrightarrow$ MULTIPLY

One TWO-STEP story problem needs special mention. You may be asked to find the AVERAGE of something -- money, grades, scores, people. To find the AVERAGE, you:

ADD $\longrightarrow$ DIVIDE (by the number of items added)

Example: Sam received 75 on the test. John got 82, and I got only 71.
          What is our <u>average</u> score?

<u>ADD</u>   <u>DIVIDE</u>

75 - Sam's score   <u>76</u> - average score
82 - John's score   3/228 - (total of scores)
<u>71</u> - my score
228   ←   ↑
                        Three
                        items
                        added

Instructions: Decide which TWO-STEPS you need to use to solve these story
problems. Write down those steps. Solve the problem. SHOW YOUR WORK!
Circle your final answer! Do the work on the answer sheet.

Example: A field has eight rows of targets with seven targets in
          each row. If PVT Goin removes seven of the targets from
          that field, how many targets remain?

<u>MULTIPLY</u> ————————→ <u>SUBTRACT</u>

8 rows   56
<u>x 7</u> targets in each row   <u>- 7</u>
56 targets   49 targets left

1. SGT Davis had $15.00. He wanted to go to the rodeo. He paid $2.00 for
   bus fare, $6.25 for lunch at the rodeo, and 90¢ for peanuts. He spent
   what was left on a souvenir program. How much did the souvenir program
   cost?

2. Mrs. Lashbrook had 38 soldiers in her BSEP class on the first day. On
   Tuesday, ten of them volunteered to go to PLATO. She divided the remaining
   soldiers with Mrs. Howard. How many soldiers were in each class?

3. Army Community Service had 9 budget counselors. Four of those quit for
   personal reasons, but then 3 new counselors were trained and began work.
   How many budget counselors did A.C.S. have then?

4. Three soldiers are in the overweight program. Soldier A weighs 205 pounds.
   Soldier B weighs 173 pounds, and Soldier C weighs 249. What is their
   average weight in pounds?

5. An infantry platoon has 11 rows of soldiers with 3 soldiers in each row.
   Five soldiers in that Platoon fell out for sick call. How many soldiers
   remained in the Platoon?

6. On a topographic map, 2 inches represent 75 miles. The distance between two ridges is 6 inches. How many miles apart are the two ridges?

7. For the annual Christmas drive to collect money for needy families, each company in the battalion raised $75.00. The money was divided among 4 families. If five companies participated, how much money did each needy family receive?

8. The Red Cross aided 67 soldiers last month. Army Community Service helped 51 people. The Alcohol and Drug Abuse Counseling aided 73 soldiers, and Army Emergency Relief loaned money to 25 soldiers. What was the average number of persons helped last month by these agencies?

Answer Sheet
Story Problems
Activity Sheet 7A
Two-Step Problems   Name _____

1.

2.

3.

Answer Sheet
Story Problems
Activity Sheet 7A
Two-Step Problems

Name _____

4.

5.

6.

7.

8.

Now it is time to learn to do story problems that have THREE (or more)
STEPS to complete to solve the problem.

[REMEMBER: IN ALL STORY PROBLEMS, NO MATTER HOW MANY STEPS YOU MUST DO, YOU
ALWAYS LOOK FOR KEY WORDS FIRST. THEN TRY TO MAKE A MENTAL PICTURE OF WHAT
THE PROBLEM IS TELLING YOU!]

Look at the following story problem:

SGT Aragon was trying to balance his checkbook. He started the month
with $67.32 in his account. Then he deposited his pay check of
$633.00. He wrote checks for $10, $137.50, $18.75, and $250. What
is the balance in SGT Aragon's checking account?

You may have had the same problem as SGT Aragon! How do you figure out how
much money you still have to spend?

First, let's look for KEY WORDS in the above problem: DEPOSITED tells
you to ADD; BALANCE means what is LEFT after you SUBTRACT. You must both
ADD and SUBTRACT to find the correct answer.

```
     $ 67.32 - left over from last month
     + 633.00 - DEPOSITED (PUT IN)
      $700.32 - START OF MONTH

     $ 10.00                          $700.32 - start of month
      137.50                        - 416.25 - total checks written
       18.75                          $284.07 - amount left = BALANCE
      250.00
      $416.25 - TOTAL CHECKS WRITTEN
```

SGT Aragon has $284.07 left after he writes the four checks. That is his
balance. In this problem you

ADD ──────→ ADD ──────→ SUBTRACT ──────→ ANSWER

Instructions: In the following story problem, you will need to do THREE or MORE
steps to get the answer. Give the steps (as shown above). Then solve the
problem. SHOW YOUR WORK! (LOOK FOR KEY WORDS!). Circle your final answer.

Example: SGT Cassetta ordered a new car which listed at $5749.50.
He had a tape player installed at an additional cost of
$179.00. Then he decided to add rear speakers which cost
$78.00 a pair. If the dealer gave Cassetta $1500 as a
trade-in on his old car, how much did he owe for his new one?

ADD	ADD	SUBTRACT

$179.00 tape player $5749.50 car   → $6006.50 - total cost of new car
+ 78.00 speakers → + 257.00 "extras"   - 1500.00 - trade in
$257.00 ———————— $6006.50 ———— ($4506.50) - answer

1. SP4 Anders' gross pay included $538.00 basic pay and $150.00 quarters
   allowance. He had deductions of $25.00 for a savings bond, $120 for taxes
   and $25.00 for an overpayment from the previous month. What was the
   amount of SP4 Anders' net pay that month?

2. If PVT Lyles stopped smoking, he figured he could save $8.00 a week. If
   he walked to work, he could save $3.00 a week on gas. He had his eye on
   a new stereo component system. It cost $480. He decided he would quit
   smoking and walk to work. He put the money he saved in a jar. At the
   end of 16 weeks, how much more money will he still have to find in order to
   buy the stereo?

3. SGT Rawlings wanted to estimate how much travel pay he would receive on
   his PCS. He has a wife and two children, ages 3 and 7. He receives
   18¢ per mile, his wife receives 12¢ and each child receives 6¢. His orders
   send him 1500 miles. If the government gave him travel pay but his actual
   expenses totalled $700, how much would he be in the hole for the move?

4. PVT Overby buys one savings bond for $25 each month. PVT Axle buys
   one bond for $75 each month. At the end of one year, how much more has
   Axle saved than Overby?

5. The recruit bought 7 shirts at $2.06 per shirt and two pairs of shoes
   at $23 a pair. How much change did he receive from $62.00?

Name _____

1.

2.

3.

4.

5.

You have already learned about fractions. Fractions also appear in story problems. Here are some hints to help you identify the operations you will need to solve fraction story problems.

Addition and subtraction problems are easy to recognize. You have learned some of the key words for addition problems--SUM, TOTAL, ALTOGETHER, and COMBINED. You also learned some of the key words for subtraction--DIFFERENCE, HOW MUCH MORE, HOW MUCH LESS. The words GROSS and NET in a problem often are clues to subtract.

Multiplication problems are sometimes harder to recognize. <u>The word OF following a fraction usually means to multiply.</u>

Example: PVT Soames bought a used car for $2400.   He paid $\frac{1}{3}$ <u>of</u> the price as a down payment. How much was his down payment?

$$\frac{1}{3} \overset{of}{\underset{x}{}} \ \$2400 \ = \ \underline{\$800}$$

Watch for situations that mean to multiply. You may be told the price of one item. Then you are asked to find the price of several items.

Example: One pound of hamburger costs $1.78. Find the cost of $2\frac{1}{2}$ pounds for a meat loaf.

$$2\frac{1}{2} \ x \ \$1.78 = \quad \cdot \frac{5}{2} \ x \ \$\cancel{1.78}^{89} \ = \ \$4.45$$

Division problems are the hardest to set up correctly. Remember that the thing being divided must come <u>first</u> in the problem. The words CUT, SHARE, SPLIT usually mean to divide.

The word PER in "miles <u>per</u> gallon" and "miles <u>per</u> hour" means to divide.

Example: SGT Kluzinski drove 95 miles in $2\frac{1}{2}$ hours with frequent stops. Find his average speed in <u>miles per hour</u>.

$$95 \div 2\frac{1}{2} \ = \ \frac{95}{1} \div \frac{5}{2} \ = \ \frac{\cancel{95}^{19}}{1} \ x \ \frac{2}{\cancel{5}_1} \ = \ 38 \text{ miles per hour}$$

Watch for situations that mean to divide. For example, you may be told the cost of several items. Then you are asked to find the cost of <u>one</u> item.

Example: The army paid $15 for $3\frac{3}{4}$ reams of typing paper. Find the cost of one ream of paper.

$$\$15 \ \div \ 3\frac{3}{4} \ = \ \frac{15}{1} \div \frac{15}{4} \ = \ \frac{\cancel{15}^1}{1} \ x \ \frac{4}{\cancel{15}_1} \ = \ \$4.00$$

Story Problems
Activity Sheet 9A
Problems with Fractions   Name _____

REMEMBER: In many problems you will need more than one step (operation) to
get answers. List for yourself the steps you need to take before you start!

Instructions: List the steps you need to use to solve the following fraction
story problems. Then solve the problem. SHOW YOUR WORK! Circle your final
answer. (Don't forget your mental pictures.)

Example: Last year LT Ramsey made $13,500. He spent $\frac{1}{4}$ of his income on
rent. How much did he spent on rent?

MULTIPLY

$$\frac{\cancel{13500}^{3375}}{1} \times \frac{1}{\cancel{4}} = \$3375$$

1. If $\frac{1}{3}$ yard of parachute cloth costs $6.00, how much will one yard cost?

2. The sergeant needs some small metal strips for the motor pool. How many
pieces of metal, each $\frac{3}{8}$ of an inch long, can be cut from a metal strip
72" long?

3. Second offenders for drunken driving must pay fines over $500. Last month
27 soldiers were arrested for drunken driving. If $\frac{1}{3}$ of those were second
offenders, how many soldiers had to pay fines over $500?

4. Counseling helps to change behavior. One-fourth of all persons counselled
change their behavior for the better. One hundred soldiers are counselled
for drug abuse. How many of those same soldiers will change their behavior
for the better?

5. The Juarezes spend $\frac{3}{8}$ of their income for food, $\frac{1}{4}$ of their income for rent,
and $\frac{3}{16}$ of their income for electricity. After these items are paid, what
part of their income is left to spend?

6. SP4 Allen tries to save $\frac{1}{9}$ of his net income every month. His gross pay is
$1000. His net pay is $810. How much will he save this month?

7. Joyner wants to figure what kind of gas mileage he gets with his car. He drove 159 miles on $10\frac{3}{5}$ gallons of gasoline. How far did he drive on one gallon?

8. Rogers works at a part time job during off-duty hours. Monday, he worked $2\frac{1}{2}$ hours. Thursday he worked $1\frac{3}{4}$ hours, and on Saturday he worked $6\frac{2}{3}$ hours. How many hours that week did he work at his part-time job?

9. Rowell went to the PX sale. He bought a coat that regularly sold for $69. It was on sale for $\frac{1}{3}$ off. How much did Rowell pay for the coat?

10. Four buddies went fishing on the training holiday. They agreed to share the fish equally. Together they caught $17\frac{3}{4}$ pounds of fish. How many pounds did each person get?

1.

2.

3.

4.

5.

Name _____

6.

7.

8.

9.

10.

Name _____

You have learned that a percent is like a decimal or a fraction. Percents are often used in business. Interest rates, sales tax, and discounts are all measured in percents. For example, 6% is the sales tax rate in California.

Finding a percent of a number is the most common percent story problem. In these problems, you have the percent and the number you must find the percent of. Many examples of finding a percent of a number takes two or more steps.

Example: Williams bought a shirt for $12.95. The sales tax is 6%. What is the total price of the shirt, including tax?

First you must change the percent to a decimal.

6% = .06 ⟶ MULTIPLY ⟶ ROUND OFF ⟶ ADD

$12.95 .777 = $.78 $12.95
x .06 + .78
.7770 $13.73

Example: A jacket was marked $45 in the clothing sales store. It was put on sale for 20% off? How much does it cost now?

20% = .20 ⟶ MULTIPLY ⟶ SUBTRACT

$45 $45.00
x.20 - 9.00
$9.00 $36.00

Instructions: Solve the following story problems. Change the percent to a decimal. Decide which operations to use. Compute the answer. Show your work! Circle your final answer.

1. A suit that normally sells for $168 is on sale for 50% off. What is the sale price of the suit?

2. SP4 Johnson and his wife are buying a house for $60,000. They have to make a down payment of 15%. How much is the down payment on the house?

3. In 1970, the sergeant's house cost $24,600. In 1980, the value of the house was 80% more than the 1970 price. Find the value of the sergeant's house in 1980. Round off to the nearest hundred.

4. Last weekend PFC Owens took his girl out to dinner. The total bill came
    to $23.00. If he left a 15% tip, how much would the waitress get?

5. Of 220 men who took the SQT, 20% received a "NO-GO." How many men
    received a "GO"?

6. PVT Eason went to the civilian army surplus store to buy several items.
    He bought a mug with his unit crest for $4.95, 2 ribbons for $1.00, and
    a T-shirt for $6.00. If state tax is 6%, how much tax must he pay on his
    purchases? Round off to the nearest cent.

7. SP4 Davenport ordered a new car. It cost $6500. The dealer offered him
    $1500 for his present car as a trade-in. He accepted the offer. If state
    sales tax is 6%, how much tax will he need to pay on his new car?

ANSWER SHEET
Story Problems
Activity Sheet 10A
Problems with Percents   Name _____

1.

2.

3.

4.

5.

6.

7.

Name _____

Interest is a common application of percents. Interest is money someone pays for using someone else's money. A bank pays you interest for using your money in a savings account. You pay the bank interest for using the bank's money on a loan.

To find interest, multiply the PRINCIPAL by the RATE by the TIME.

(P x R x T)

The PRINCIPAL is the money borrowed or loaned.
The RATE is the percent of interest.
The TIME is the number of <u>years</u> the money is borrowed or loaned.

Example: Find the interest on $600 at 7% annual interest for one year.

7% = .07 ⟶ <u>MULTIPLY</u> ⟶ <u>MULTIPLY</u>

$600 principal   time
x .07 interest rate $42.00 x 1 (year) = $42.00
$42.00

When you do interest problems, follow the same rules for doing other percent problems.

Instructions: Solve the following interest story problems. Change the percent to a decimal. Compute your answer. Show your work. Circle your final answer.

1. The credit union loaned PVT Jaecke $1000 for a stereo. He was charged 12% interest. If the loan was for 2 years, how much interest did he pay?

2. SFC Hanson has $6392 in the credit union. If he receives 8% interest on his money, how much money will he have at the end of 1 year? (BE CAREFUL!) Round to the nearest cent.

3. How much interest will you pay if you borrow $450 at $11\frac{1}{2}$% for 1 year?

4. SFC Clark borrows $4200 for a new car. She takes 3 years to pay it off. The bank charges her 13% interest a year. What are her <u>monthly</u> payments? Round to the nearest dollar.

5. Find the interest: $1800 at 7.5% annual interest for $1\frac{1}{2}$ years.

These problems will give you a chance to apply your measurement skills to story problems. Some problems may take several steps to find the answer. Refer to your measures module activity sheets if you need to.

Two kinds of measurement story problems need special mention. The first is PERIMETER.

PERIMETER means the <u>total distance around</u> something. You <u>ADD</u>.

Example: If a yard measures 18 feet by 38 feet, how many feet of fence will it take to go <u>AROUND</u> the yard?
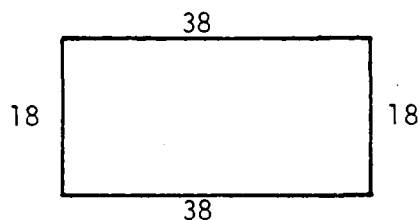
```
            38
   ┌─────────────────┐
18 │                 │ 18          18 + 18 + 38 + 38 = (112 feet)
   └─────────────────┘                                  of fence
            38
```

AREA means measuring the amount of space <u>inside</u> something. You <u>MULTIPLY</u>.

Example: Harold needs a new carpet for his living room. If the room is 10 feet long and 12 feet wide, how many square feet of carpet will he need?

```
         12
   ┌───────────┐
10 │           │ 10
   └───────────┘            10' x 12' = (120) square feet
         12
```
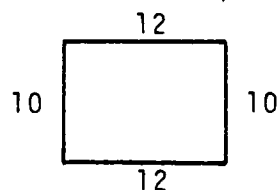
Instructions: Solve the following story problems. List your steps. Show your work. Circle your final answer.

1. The hall in Ramon's apartment is 3 feet wide and 9 feet long. He wants to buy a rug to cover the hall. How many square feet of rug will he need?

2. Company A spent 2 hrs. 25 min. on Monday painting the outside of the barracks. On Tuesday, they worked 1 hr. 40 min. Wednesday, they worked 3 hrs. 10 min. Altogether, how much time did Company A spend painting that week?

3. The corporal mailed 3 packages, each weighing 2 lbs. 9 oz. What was
    the total weight of the packages?

4. The cook ran out of margarine. He bought an 8 ounce package for 99¢.
    To the nearest cent, what was the price of one ounce of margarine?

5. The engineers need new fencing at the ball park. If the park is 200 feet
    in length and 150 feet in width, how much fencing do they need?

ANSWER SHEET
Story Problems
Activity Sheet 12A
Problems with Measures   Name _____

1.

2.

3.

4.

5.

Story Problems
Activity Sheet 13A
Mixed Problems   Name _____

```
┌──────────────────────────────────────────────────────────────────────┐
│                                                                        │
│        This activity sheet has story problems of 1-step, 2-step, and   │
│   3-step operations.  It is a review of addition, subtraction,         │
│   multiplication, division, fractions, percents, measures, and         │
│   interest.                                                            │
│                                                                        │
└──────────────────────────────────────────────────────────────────────┘
```

Instructions: Read each problem carefully. Make a mental picture of the problem.
     Look for key words. Compute the answer. Mark it on the answer sheet.
     If your answer does not match one of the answers given, mark NONE OF THESE.

         Example: SGT and Mrs. Delacruz bought new furniture marked $650.
                    They agreed to pay for the furniture by making 15 equal
                    monthly payments of $52 each. How much more than $650
                    did the furniture cost them?

```
          MULTIPLY          SUBTRACT           0    a    $650
             52               $780
           x 15              - 650             0    b    $780
            260           ┌─────────────┐
             52           │  $130 more  │      0    c    $260
           ─────          └─────────────┘
           $780                                0    d    $520

                                               ●    e    None of these
```

1. On a BSEP spelling test, Ortiz spelled 18 words correctly. Delman spelled
    13 words correctly and Green got 20 correct. What is their average number
    of correct spelling words:

                    a   13
                    b   51
                    c   17
                    d   16
                    e   None of these

2. On the SQT 11B task of wearing a protective mask, 224 soldiers were tested.
    92% passed. How many soldiers received a "NO-GO"? Round off.

                    f   18
                    g   8
                    h   206
                    j   132
                    k   None of these

3. Yesterday 227 soldiers took the SQT 11B task of determining an azimuth.
    Only 89 got a "GO." On determining grid coordinates, only 63 got a "GO."
    How many more "NO-GO's" were there in determining grid coordinates?

                    a   38
                    b   138
                    c   164
                    d   26
                    e   None of these

4. You are sighting through binoculars at an enemy tank which is 7.5 meters
    in width. It measures 5 mils. What is the range, in meters, to the tank?

    ($\frac{Width}{mils}$ = range, or Width ÷ mils = RANGE. A mil is written .001.

    7 mils is written .007.)

         f   15
         g   1500
         h   75
         j   750
         k   None of these

5. At the PX, Hernandez bought toothpaste for 69¢, razor blades for $2.65
    and writing paper for $1.59. How much change did he receive from a $10 bill?

         a $5.07
         b   4.93
         c   7.34
         d $5.17
         e   None of these

6. If SGT Ramon pays $3.50 each month for SGLI, how much does he pay per year?

         f $420
         g $240
         h $24.00
         j $35.00
         k   None of these

7. Henning hit 3 targets in the pistol matches. Woitekaitis hit 4 times as
    many targets. How many targets did Woitekaitis hit?

         a   7
         b   3
         c   21
         d   12
         e   None of these

8. Thirty units were invited to the change of command. Two-thirds said they
    would attend. How many units will attend?

         f   12
         g   32
         h   20
         j   45
         k   None of these

ANSWER SHEET
Story Problems
Activity Sheet 13A
Mixed Problems   Name _____

1. a 0   2. f 0   3. a 0   4. f 0
    b 0   g 0   b 0   g 0
    c 0   h 0   c 0   h 0
    d 0   j 0   d 0   j 0
    e 0   k 0-   e 0   k 0

5. a 0   6. f 0   7. a 0   8. f 0
    b 0   g 0   b 0   g 0
    c 0   h 0   c 0   h 0
    d 0   j 0   d 0   j 0
    e 0   k 0   e 0   k 0

Story Problems
Activity Sheet 1A
Key Words

		Add	Sub	Mult	Div
1.	share . . . equally	0	0	0	●
2.	combined	●	0	0	0
3.	times as many	0	0	●	0
4.	quit	0	●	0	0
5.	have in all	●	0	0	0
6.	of	0	0	●	0
7.	joined	●	0	0	0
8.	delivered	0	●	0	0
9.	divided	0	0	0	●
10.	sold	0	●	0	0
11.	paid	0	●	0	0
12.	sum	●	0	0	0
13.	split	0	0	0	●
14.	times as many	0	0	●	0
15.	removed	0	●	0	0

1.   Step 1:   The problem tells you that Harrison is a truck driver, how many
                       miles he drives on each day and how long it takes him.

          Step 2:   The given facts are (1) Tuesday he drove 70 miles in 2 hours,
                       (2) Thursday he drove 114 miles in 3 hours, and (3) Friday he
                       drove 44 miles in one hour.

          Step 3:   The problem is asking for total miles driven, not the hours it took.

          Step 4:   The facts to use are (1) 70 miles, (2) 114 miles, (3) 44 miles.
                       You don't need to know the hours.

          Step 5:   You must ADD: 70
                                     114
                             + 44

                               228 miles: Answer

          Step 6:   Check: 44
                                  114
                           + 70
                             228

2.   Step 1:   The problem is about the time it takes 3 people to get to work.

          Step 2:   The given facts are (1) Ralph (5 minutes to work), (2) Terry
                       (8 minutes to work), (3) Hal (19 minutes to work).

          Step 3:   The problem is asking how much faster Ralph makes it to work
                       compared to Terry.

          Step 4:   The facts to use are (1) 5 minutes for Ralph, (2) 8 minutes
                       for Terry.

          Step 5:   You must SUBTRACT:

                       Terry's time - Ralph's time = answer

                              8 minutes
                           - 5 minutes
                            3 minutes faster - answer

          Step 6:   The answer makes sense.

                            5 minutes - Ralph
                       + 3 minutes - faster
                          8 minutes - Terry

CHECK SHEET
Story Problems
Activity Sheet 3A
Addition Problems

		a	b	c	d
1.	joined, more	0	●	0	0

		e	f	g	h
2.	combined	0	0	●	0

		a	b	c	d
3.	total	0	0	0	●

		e	f	g	h
4.	altogether	●	0	0	0

		a	b	c	d
5.	in all	0	0	●	0

		e	f	g	h
6.	in all	●	0	0	0

		a	b	c	d
7.	sum	0	●	0	0

		e	f	g	h
8.	total	0	0	0	●

		a	b	c	d
9.	combined	0	0	0	●

		e	f	g	h
10.	altogether	●	0	0	0

Story Problems
Activity Sheet 4A
Subtraction Problems

1. difference	a	b	c	d
	0	●	0	0

2. fewer	e	f	g	h
	●	0	0	0

3. more	a	b	c	d
	0	0	0	●

4. less	e	f	g	h
	0	0	●	0

5. sold, remain	a	b	c	d
	0	●	0	0

6. delivered, left	e	f	g	h
	●	0	0	Q

7. quit	a	b	c	d
	0	0	●	0

8. left	e	f	g	h
	0	0	0	●

9. sold	a	b	c	d
	0	0	0	●

10. gross, net	e	f	g	h
	0	●	0	0

NOTE: <u>Don't</u> count a question wrong if the soldier underlined different key words. These are just <u>possible</u> key words.

1. <u>one notch</u>, <u>how many</u>, <u>5 notches</u>

a	b	c	d
●	○	0	0

2. <u>a day</u>, <u>How much</u>, <u>30 days</u>

e	f	g	h
●	0	0	0

3. <u>times as many</u>

a	b	c	d
0	0	0	●

4. <u>4 rows</u>, <u>with</u>, <u>6 desks in each row</u>

e	f	g	h
0	●	0	0

5. <u>for each</u>, <u>how much</u>, <u>2200</u>

a	b	c	d
0	0	●	0

6. <u>a gallon</u>, <u>9 gallons</u>, <u>how much</u>

e	f	g	h
●	0	0	0

7. <u>How much</u>, <u>nine</u>, <u>at $25 each</u>

a	b	c	d
0	0	0	●

8. <u>inches</u>, <u>in</u>, <u>feet</u>

e	f	g	h
0	0	●	0

9. <u>times</u>

a	b	c	d
●	0	0	0

10. <u>times as many</u>

e	f	g	h
0	0	●	0

Story Problems
Activity Sheet 6A
Division Problems

NOTE: These are <u>possible</u> key words. Don't mark the problem wrong if the soldier underlined <u>different</u> key words.

1. <u>averages</u>

a	b	c	d
0	0	0	●

2. <u>worth of</u>

e	f	g	h
●	0	0	0

3. <u>per year</u>, <u>monthly</u>

i	j	k	l
0	●	0	0

4. <u>trips</u>, <u>each trip</u>

a	b	c	d
0	0	●	0

5. <u>divided</u>

e	f	g	h
●	0	0	0

6. <u>cost of one</u>

i	j	k	l
0	0	0	●

7. <u>split</u>

a	b	c	d
0	●	0	0

8. <u>in</u>

e	f	g	h
0	0	●	0

9. <u>split</u>

i	j	k	l
●	0	0	0

10. <u>ten</u>, <u>how many</u>, <u>one</u>

a	b	c	d
0	0	0	●

1.   ADD ⟶ SUBTRACT

        $2.00 $15.00
         6.25   - 9.15
       + .90 $ 5.85
         $9.15

2.   SUBTRACT ⟶ DIVIDE

          38   14 soldiers
        - 10   2/28
          28

3.   SUBTRACT ⟶ ADD

           9   5
         - 4   + 3
           5   8 counselors

4.   ADD ⟶ DIVIDE

          205   209 lbs
          173   3/627
        + 249
          627 lbs.

5.   MULTIPLY ⟶ SUBTRACT

           11   33
         x 3   - 5
          33 soldiers   28 soldiers left

6.   DIVIDE ⟶ MULTIPLY

            3   75 miles
        2"/6"   x 3
                        225 miles

7. MULTIPLY ⟶ DIVIDE

    $75.00
    x   5
    ‾‾‾‾‾‾‾‾
    $375.00

        (\$ 93.75)
    4/$375.00
        36
        ‾‾
        15
        12
        ‾‾
        30
        28
        ‾‾
        20
        20
        ‾‾

8. ADD ⟶ DIVIDE

    67
    51
    73
    + 25
    ‾‾‾‾
    216

        (54 persons)
    4/216
        20
        ‾‾
        16
        16
        ‾‾

1. ADD ⟶ ADD ⟶ SUBTRACT

$538.00	$ 25.00	$688.00
+ 150.00	120.00	- 170.00
$688.00	+ 25.00	($518.00)
	$170.00	

2. ADD ⟶ MULTIPLY ⟶ SUBTRACT

$8.00	$11	$480
+ 3.00	x 16	- 176
$11.00	66	($304)
	11	
	$ 176	

3. ADD ⟶ MULTIPLY ⟶ SUBTRACT

.18	1500	$700
.12	.42	- 630
.06	3000	($ 70)
+ .06	x 6000	
.42	$630.00	

4. MULTIPLY ⟶ MULTIPLY ⟶ SUBTRACT

25	75	$900
x 12	x 12	- 300
50	150	($600)
25	75	
$300	$900	

5. MULTIPLY ⟶ MULTIPLY ⟶ ADD ⟶ SUBTRACT

$2.06	$23	$14.42	$62.00
x 7	x 2	+ 46.00	- 60.42
$14.42	$46.00	$60.42	($ 1.58)

Story Problems
Activity Sheet 9A
Problems With Fractions

1. DIVIDE $\longrightarrow$ MULTIPLY

$1 \div \frac{1}{3} = \frac{1}{1} \times \frac{3}{1} = 3$ $3 \times \$6.00 = \boxed{\$18.00}$

2. DIVIDE

$72 \div \frac{3}{8} = \frac{\overset{24}{\cancel{72}}}{1} \times \frac{8}{\underset{1}{\cancel{3}}} = \boxed{192}$

3. MULTIPLY

$\frac{1}{3} \times 27 = \boxed{9 \text{ soldiers}}$

4. MULTIPLY

$\frac{1}{4} \times 100 = \boxed{25 \text{ soldiers}}$

5. ADD $\longrightarrow$ SUBTRACT

$\frac{3}{8} = \frac{6}{16}$ $1 = \frac{16}{16}$

$\frac{1}{4} = \frac{4}{16}$ $- \quad \frac{13}{16}$

$+ \frac{3}{16} = \frac{3}{16}$ $\boxed{\frac{3}{16}}$

$\frac{13}{16}$

6. MULTIPLY

$\frac{1}{\underset{1}{\cancel{9}}} \times \frac{\$\overset{90}{\cancel{810}}}{1} = \boxed{\$90}$

7. <u>DIVIDE</u>

$$159 \div 10\frac{3}{5} = \frac{159}{1} \div \frac{53}{5} = \frac{\cancel{159}^{3}}{1} \times \frac{5}{\cancel{53}} = \boxed{15 \text{ miles}}$$
$$\frac{}{1}$$

(Joyner needs to get a smaller car!)

8. <u>ADD</u>

$$2\frac{1}{2} = \frac{6}{12}$$

$$1\frac{3}{4} = \frac{9}{12}$$

$$6\frac{2}{3} = \frac{8}{12}$$

$$\overline{9\frac{23}{12}} = \boxed{10\frac{11}{12} \text{ hours}}$$

9. <u>MULTIPLY</u> ⟶ <u>SUBTRACT</u>

$$\frac{1}{3} \times \$69 = \frac{1}{\cancel{3}} \times \frac{\cancel{69}^{23}}{1} = \$23$$
$$\frac{}{1}$$

$$\begin{array}{r}\$69 \\ -\ 23 \\ \hline \boxed{\$46} \end{array}$$

10. <u>DIVIDE</u>

$$17\frac{3}{4} \div 4 = \frac{71}{4} \div \frac{4}{1} = \frac{71}{4} \times \frac{1}{4} = \frac{71}{16} = \boxed{4\frac{7}{16} \text{ lbs.}}$$

1.   50% = .50 ⟶ MULTIPLY ⟶ SUBTRACT

        $168 $168
         .50   - 84
     $84.00   ($ 84)

2.   15% = .15 ⟶ MULTIPLY

        $60,000
         x .15
        300000
        60000
      ($9000.00)

3.   80% = .80 ⟶ MULTIPLY ⟶ ADD ⟶ ROUND OFF

      $24600 $24,600
       x.80   + 19,680
   $19,680.00 $44,280   = ($44,200)

4.   15% = .15 ⟶ MULTIPLY

        $23
       x.15
       115
       23
     ($3.45)

5.   20% = .20 ⟶ MULTIPLY ⟶ SUBTRACT

        220   220
         20   - 44
      44.00   (176 men)

6.   ADD ⟶ MULTIPLY ⟶ ROUND OFF

    $4.95 $11.95
     1.00   x.06
  + 6.00 $.7170   = ($.72 tax)
   $11.95

7.   SUBTRACT ⟶ MULTIPLY

    $6500 $5000
   - 1500   x.06
   $5000   ($300.00)

1.   12% = .12 ──────→ MULTIPLY ──────→ MULTIPLY

$$
\begin{array}{r} \$1000 \\ \times\ \ .12 \\ \hline \$120.00 \end{array}
\qquad
\begin{array}{r} \$120 \\ \times\ \ 2 \\ \hline \boxed{\$240} \end{array}
$$

2.   8% = .08 ──────→ MULTIPLY ──────→ MULTIPLY ──────→ ADD

$$
\begin{array}{r} \$6392 \\ \times\ \ .08 \\ \hline \$511.36 \end{array}
\qquad
\begin{array}{r} \$511.36 \\ \times\ \ \ \ 1 \\ \hline \$511.36 \end{array}
\qquad
\begin{array}{r} \$6392.00 \\ +\ \ 511.36 \\ \hline \boxed{\$6903.36} \end{array}
$$

3. $11\frac{1}{2}$ = .115 ──────→ MULTIPLY ──────→ MULTIPLY

$$
\begin{array}{r} \$450 \\ \times .115 \\ \hline 2250 \\ 450\ \ \\ 450\ \ \ \\ \hline \$51.750 \end{array}
\qquad
\begin{array}{r} \$51.75 \\ \times\ \ \ \ 1 \\ \hline \boxed{\$51.75} \end{array}
$$

4.   13% = .13 ──────→ MULTIPLY ──────→ MULTIPLY ──────→ ADD ──────→ DIVIDE

$$
\begin{array}{r} \$4200 \\ \times\ \ .13 \\ \hline 12600 \\ 4200\ \ \\ \hline \$546.00 \end{array}
\qquad
\begin{array}{r} \$546 \\ \times\ \ \ 3 \\ \hline \$1638 \end{array}
\qquad
\begin{array}{r} \$4200 \\ +\ 1638 \\ \hline \$5838 \end{array}
\qquad
162.1\ =\ \boxed{\$162.00}
$$

$$
36\overline{)5838}
$$
$$
\begin{array}{r} 36 \\ \hline 223 \\ 216 \\ \hline 78 \\ 72 \\ \hline 60 \\ 36 \\ \hline \end{array}
$$

5.   7.5% = .075 ──────→ MULTIPLY ──────→ MULTIPLY

$$
\begin{array}{r} \$1800 \\ \times\ .075 \\ \hline 9000 \\ 12600\ \ \\ \hline \$135.000 \end{array}
\qquad
\begin{array}{r} \$135 \\ \times\ 1.5 \\ \hline 675 \\ 135\ \ \\ \hline \boxed{\$202.50} \end{array}
$$

1. <u>MULTIPLY</u>

$$\begin{array}{r} 3 \text{ ft.} \\ \times\ 9 \text{ ft.} \\ \hline (27)\ \text{square feet} \end{array}$$

2. <u>ADD</u>

$$\begin{array}{ll} 2 \text{ hrs.} & 25 \text{ min.} \\ 1 \text{ hr.} & 40 \text{ min.} \\ +\ 3 \text{ hrs.} & 10 \text{ min.} \\ \hline 6 \text{ hrs.} & 75 \text{ min.} \end{array} = \boxed{7 \text{ hrs.}\ 15 \text{ min.}}$$

3. <u>MULTIPLY</u>

$$\begin{array}{r} 2 \text{ lbs. } 9 \text{ oz.} \\ \times\ 3 \\ \hline 6 \text{ lbs. } 27 \text{ oz.} \end{array} = \boxed{7 \text{ lbs. } 11 \text{ oz.}}$$

4. <u>DIVIDE</u> ⟶ <u>ROUND</u>

$$\begin{array}{r} .123 \\ 8\overline{/.99} \end{array} \longrightarrow \boxed{12¢}$$

$$\begin{array}{r} \underline{8} \\ 19 \\ \underline{16} \\ 30 \\ \underline{24} \end{array}$$

5. <u>ADD</u>

$$200 + 200 + 150 + 150 = \boxed{700 \text{ ft.}}$$

1.	a	0		2.	f	●		3.	a	0		4.	f	0
	b	0			g	0			b	0			g	●
	c	●			h	0			c	0			h	0
	d	0			j	0			d	●			j	0
	e	0			k	0			e	0			k	0

5.	a	●		6.	f	0		7.	a	0		8.	f	0
	b	0			g	0			b	0			g	0
	c	0			h	0			c	0			h	●
	d	0			j	0			d	●			j	0
	e	0			k	●			e	0			k	0

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MODULE PREVIEW
LOCATORS AND VISUALS

Instructions: Use the locators and visuals below to answer the questions.
Mark your answers on the answer sheet.

Use the Table of Contents to answer Questions 1 and 2.

THE INFANTRY PLATOON AND SQUAD
(INFANTRY, A̶I̶RBORNE, AIR ASSAULT, RANGER)

Name _____

1. What is the title of Chapter 3, Section VI?

      (a) The Offense   (c) Control Measures
      (b) Daylight Attack (d) General

2. On what page would you learn about control measures for the defense?

      (f) 3-1   (h) 4-1
      (g) 3-29   (j) 4-1̶7̶

Use the Index below to answer Questions 3-5.

	Paragraph	Page
Aiming bar (fig 4-3)		81
Aiming exercises	4-2	78
Aiming point	3-3	57
Ammunition:		
Care, cleaning	2-23	55
Classification	2-21	54
Packing	2-22	54
Types of (fig 2-57)		54
Appearance-of-objects method		
of measurement	6-8	98
Assembly of field stripped rifle	2-6	11
Automatic rifle marksmanship:		
Fire distribution:		
Concentrated	7-6	113
Distributed	7-6	113
Firing positions	7-3	110
Integrated act of shooting	7-2	109
Magazine changing	7-4	111
Qualification firing	7-10	117
Training, conduct of	7-7	115
Transition firing	7-9	115
Twenty-five meter firing	7-8	115
Automatic sear .... fig 2-34		28
Battlesight zero target 4-9, 4-10		86
Bipod (fig 2-2)		7
Blank firing attachment (fig 2-28)	2-21	55, 54
Bolt (fig 2-6, 2-15)		9, 12
Bolt carrier (fig 2-10)		11
Buffer assembly (fig 2-16)		13

3. On what page can you read about the care and cleaning of ammunition?

      (a) 55   (c) 3-3
      (b) 2-21   (d) 2-23

4. How to conduct training for automatic rifle marksmanship is in Paragraph _____

      (f) 113   (h) 7-7
      (g) 7-6   (j) 115

5. Where would you read about the appearance-of-objects method of measurement?

    (a) Paragraph 6-8   (c) Both
    (b) Page 98   (d) Neither

Use the Table below to answer Questions 6 and 7.

DANGER MARKER	PRIMARY COLORS	SECONDARY COLORS	
		MARKINGS	INSCRIPTIONS
RADIOLOGICAL CONTAMINATION	WHITE	NONE	BLACK
BIOLOGICAL CONTAMINATION	BLUE	NONE	RED
CHEMICAL CONTAMINATION	YELLOW	NONE	RED
CHEMICAL MINEFIELDS	RED	WHITE STRIPE	YELLOW
BOOBYTRAPPED AREAS	RED	WHITE STRIPE	NONE
UNEXPLODED MUNITIONS	RED	WH.TE (BOMB)	NONE

6. How many danger markers have red as their primary color?

    (f) None   (h) Two
    (g) One   (j) Three

7. How do you tell the difference between a chemical minefield marker and a
    boobytrapped areas marker?

    (a) The chemical minefield marker has a yellow inscription.
    (b) The boobytrapped area marker is yellow.
    (c) Only one has a white stripe.
    (d) The boobytrapped area marker has a red inscription.

Use the bar graph (next page) to answer Questions 8 and 9.
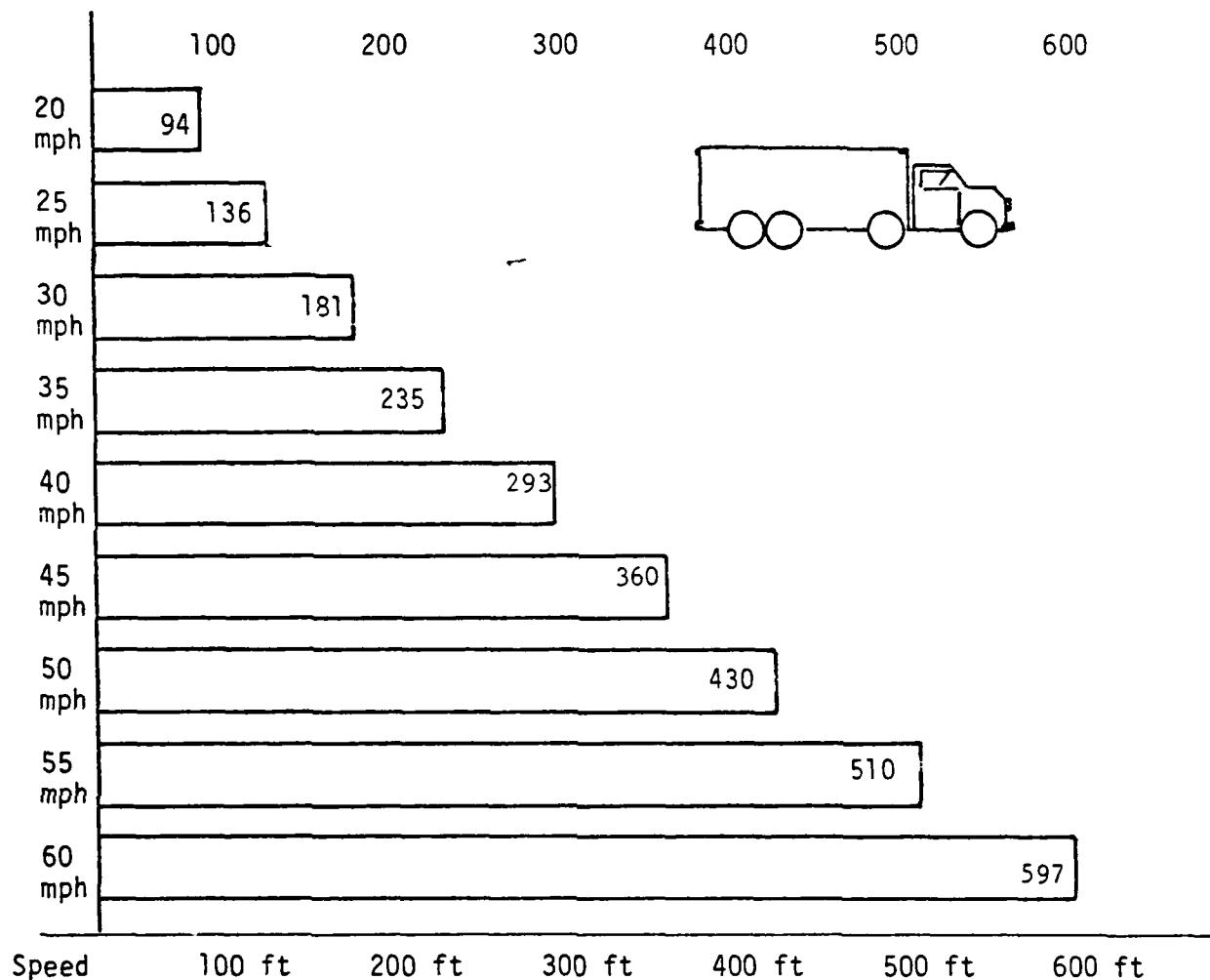
TOTAL DRIVER STOPPING DISTANCES FOR VEHICLES WITH A
GROSS WEIGHT OF OVER 10,000 POUNDS (THREE AXLES OR MORE)

8. If a truck is traveling 45 mph, how long does it take to stop?

      (f) 235 feet   (h) 45 feet
      (g) 360 feet   (j) 510 feet

9. It took a three-axle truck 600 feet to stop. About how fast was it going?

      (a) 60 mph   (c) 55 mph
      (b) 100 mph   (d) 45 mph

620

Use the line graph below to answer Questions 10 and 11.
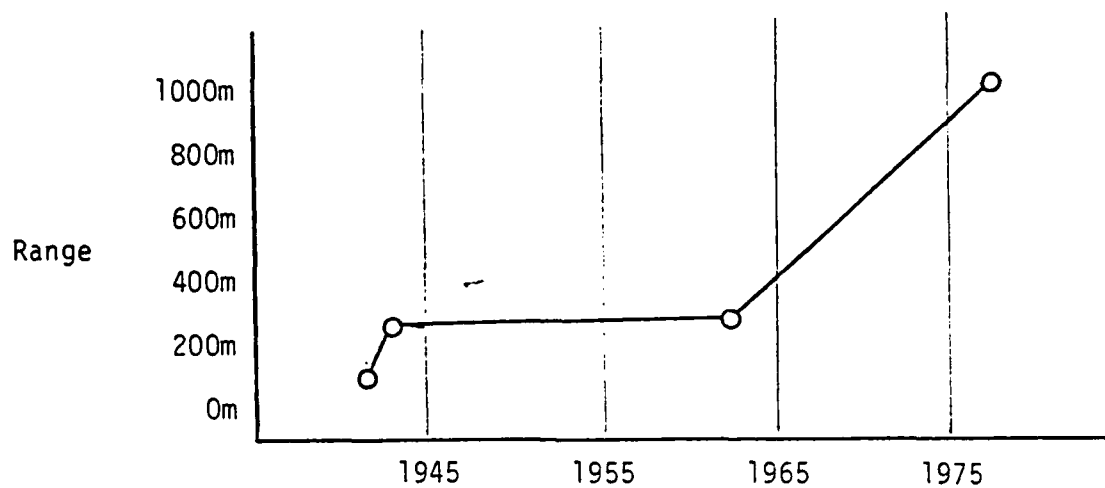
TOP EFFECTIVE RANGE FOR INDIVIDUAL ANTI-TANK WEAPONS

10. How many meters of range did individual antitank weapons have in 1955?

    (f) 1000 m   (h)   300 m
    (g)   400 m   (j)   200 m

11. What year had the lowest individual antitank weapon range?

    (a) 1958   (c) 1965
    (b) 1945   (d) 1943

Use the following pie graph to answer Questions 12 and 13.
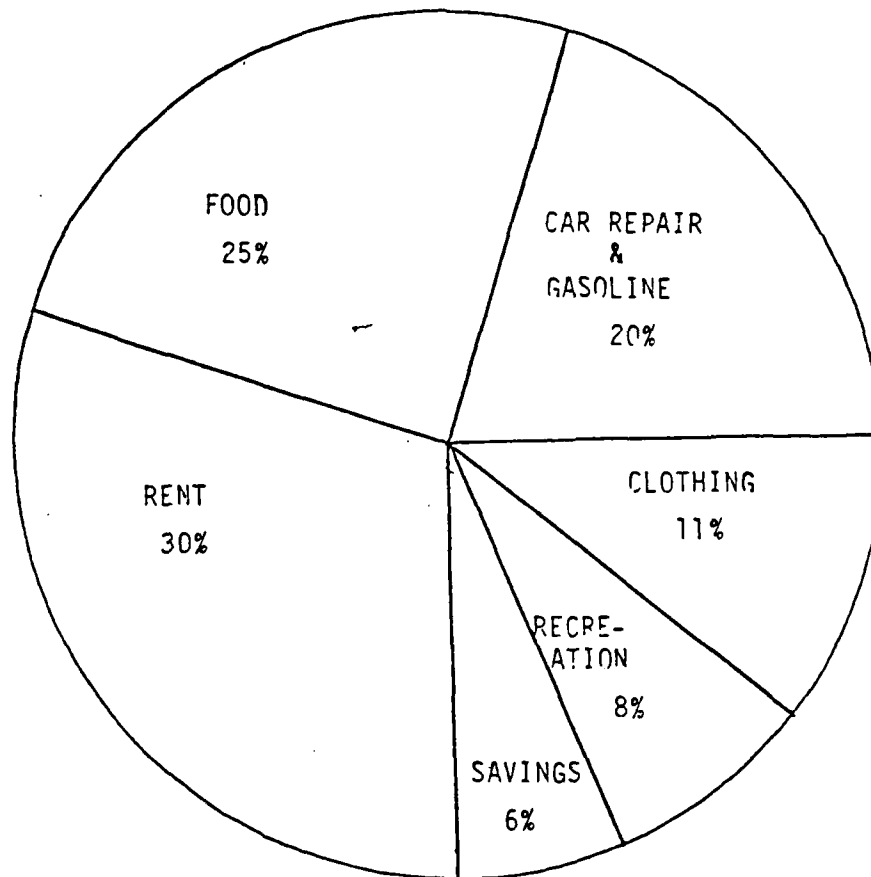
SGT CARTER'S EXPENSES FOR JUNE
(PERCENT OF SALARY)

12. How did SGT Carter spend the <u>smallest</u> amount of his pay?

    (f) On savings   (h) On rent
    (g) On recreation   (j) On food

13. What percent of his salary did SGT Carter spend on clothing and recreation <u>combined</u>?

    (a) 11%   (c) 14%
    (b) 19%   (d) 8%

Use the dial to answer Questions 14 and 15.

AIR PRESSURE
POUNDS PER SQUARE INCH
(PSI)
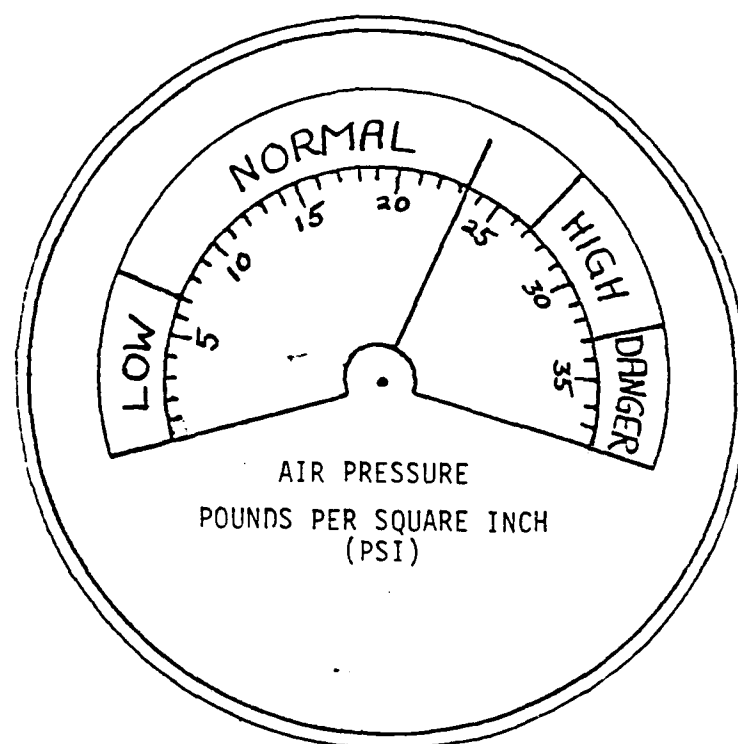
14. If the pointer shows 35 PSI, what zone is it in?

    (f) Low   (h) High
    (g) Normal   (j) Danger

15. What is the normal range?

    (a) From 0 to 7 PSI
    (b) From 33 to 38 PSI
    (c) From 7 to 27 PSI
    (d) From 27 to 33 PSI

Use the meter (to the right) to answer Question 16.

16. What is the temperature in Centigrade?

    (f) 29°C   (h) 84°C
    (b) 82°C   (j) 28°F

DEGREES FAHRENHEIT (F)

DEGREES CENTIGRADE (C)
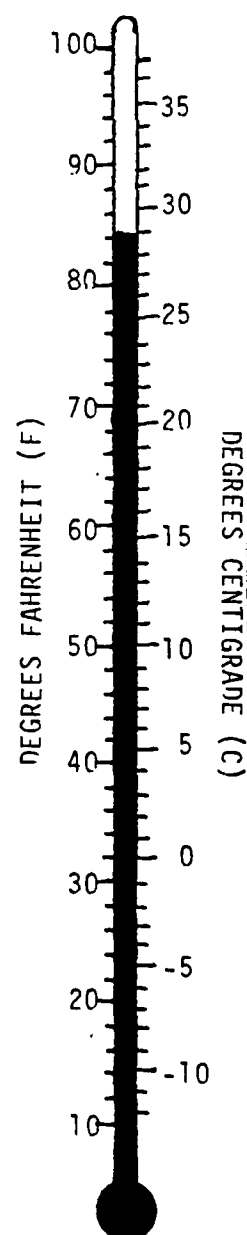
ANSWER SHEET
MODULE PREVIEW
Locators and Visuals

1.
	a	b	c	d
	0	0	0	0

2.
	f	g	h	j
	0	0	0	0

3.
	a	b	c	d
	0	0	0	0

4.
	f	g	h	j
	0	0	0	0

5.
	a	b	c	d
	0	0	0	0

6.
	f	g	h	j
	0	0	0	0

7.
	a	b	c	d
	0	0	0	0

8.
	f	g	h	j
	0	0	0	0

9.
	a	b	c	d
	0	0	0	0

10.
	f	g	h	j
	0	0	0	0

11.
	a	b	c	d
	0	0	0	0

12.
	f	g	h	j
	0	0	0	0

13.
	a	b	c	d
	0	0	0	0

14.
	f	g	h	j
	0	0	0	0

15.
	a	b	c	d
	0	0	0	0

16.
	f	g	h	j
	0	0	0	0

ANSWER KEY/DIAGNOSTIC
MODULE PREVIEW OR REVIEW
Locators and Visuals

IF WRONG, ASSIGN: IF WRONG, ASSIGN:

	a	b	c	d				a	b	c	d	
1.	0	●	0	0	1		9.	●	0	0	0	4

	f	g	h	j				f	g	h	j	
2.	0	0	0	●	1		10.	0	0	●	0	5

	a	b	c	d				a	b	c	d	
3.	●	0	0	0	2		11.	0	0	0	●	5

	f	g	h	j				f	g	h	j	
4.	0	0	●	0	2		12.	●	0	0	0	6

	a	b	c	d				a	b	c	d	
5.	0	0	●	0	2		13.	0	●	0	0	6

	f	g	h	j				f	g	h	j	
6.	0	0	0	●	3		14.	0	0	0	●	7

	a	b	c	d				a	b	c	d	
7.	●	0	0	0	3		15.	0	0	●	0	7

	f	g	h	j				f	g	h	j	
8.	0	●	0	0	4		16.	●	0	0	0	7

MODULE RECORD SHEET
LOCATORS AND VISUALS

OBJECTIVE: Find page and paragraph numbers for subjects listed in tables of contents or indices. Answer questions about data by using tables and graphs.

SAMPLE TEST ITEMS:

TYPICAL U.S. CHEMICAL AGENTS AND THEIR EFFECTS

AGENT	WHAT IT LOOKS LIKE	HOW LONG IT STAYS IN TARGET AREA	EFFECT	TIME TO EFFECT
Nerve Agent "GB"	Vapor or Aerosol	A few minutes	Can kill unmasked troops	A few minutes if agent is inhaled
Nerve Agent "VX"	Liquid	A few hours to a week	Can kill troops. Contaminates terrain and equipment	A few hours
Blister Agent "HD"	Liquid	Usually a few days, possibly a few weeks	Incapacitates troops. Contaminates terrain and equipment	A few hours

1. How long does Nerve Agent "GB" stay in the target area?

(a) A few minutes   (c) A few days   a   b   c   d
(b) A few hours   (d) A few weeks   ●   0   0   0

2. Which two agents look like a liquid?

(f) "GB" and "VX"   (h) "VX" and "HD"   f   g   h   j
(g) "GB" and "HD"   (j) None of them   0   0   ●   0

INTRODUCTION TO LOCATORS AND VISUALS:

     Locators are tables of contents and indices. They tell you what is in a book or manual, and they show you how to find what you want. Visuals are tables, graphs, and meters. They show you a picture of certain kinds of facts, or data. In tables, the facts are arranged in columns and rows. In graphs, there may be bars or lines to show you how much of something you might have under different conditions. In meters and dials, a pointer usually tells you how much of something you have.

     These activity sheets will show you how to get facts from locators and visuals. Work through all the activity sheets that have been circled. You can check your own work using the check sheets your teacher has shown you. If you have any questions, ask your teacher. When you are through with all the activity sheets and are sure you understand how to use locators and visuals, ask to take the Locators and Visuals Review.

ACTIVITY SHEETS (Do those that are circled).

1.	Table of Contents	1A	1B
2.	Index	2A	2B
3.	Tables	3A	3B
4.	Bar Graphs	4A	4B
5.	Line Graphs	5A	5B
6.	Pie Graphs	6A	6B
7.	Meters and Dials	7A	7B

MODULE REVIEW
LOCATORS AND VISUALS

Instructions: Use the locators and visuals below to answer the questions. Mark your answers on the answer sheet.

Use the Table of Contents to answer Questions 1 and 2.

SOLDIER'S MANUAL OF COMMON TASKS
SKILL LEVEL 1

TABLE OF CONTENTS

628

Module Review
Locators and Visuals   Name _____

1. Which chapter starts on page 37?

        (a) I. See   (c) III. Navigate
        (b) II. Communicate   (d) IV. Shoot

2. On what page would you find Task #071-329-1003?

        (f) 41   (h) 45
        (g) 57   (j) 53

Use the Index below to answer Questions 3-5.

3. To find out about liaison officers, look on Page _____

        (a) 2-6   (c) 3-4b(14), 3-12b
        (b) 2-4   (d) 1-12

4. Combat at night is shown in Paragraph _____

        (f) 6-26   (h) 5-43----5-45
        (g) 4-10e   (j) 5-20

5. Fire planning for the offense is discussed on Page _____

        (a) 4-1, 4-8   (c) 5-9
        (b) 4-4, 4-5   (d) 4-2

Use the Table below to answer Questions 6 and 7.

TABLE 1. FIRING ANTITANK WEAPONS FROM
BUILDINGS AND ENCLOSED AREAS

WEAPON	MIN ROOM SIZE, FRAME STRUCTURE	MIN ROOM SIZE, MASONRY STRUCTURE	MIN VENT SIZE*
LAW	7' x 10'	Min of 4' to back wall	20 Ft^2
DRAGON	15' x 15'	17' x 11'	20 Ft^2
TOW	20' x 30'	20' x 20'	20 Ft^2

All glass should be removed from windows, doors and within rooms. Soft furniture and curtains should be left to absorb sound. Firers must wear helmets and ear plugs. Don't stand behind weapons being fired.
*Open door and window space.

6. Which weapon has a minimum masonry structure room size of 20' x 20'?

        (f) All of them   (h) DRAGON
        (g) LAW   (j) TOW

7. Which weapons have a minimum vent size of 20 ft^2?

        (a) All of them   (c) TOW and LAW
        (b) LAW and DRAGON (d) DRAGON only

Use the bar graph below to answer Questions 8 and 9.
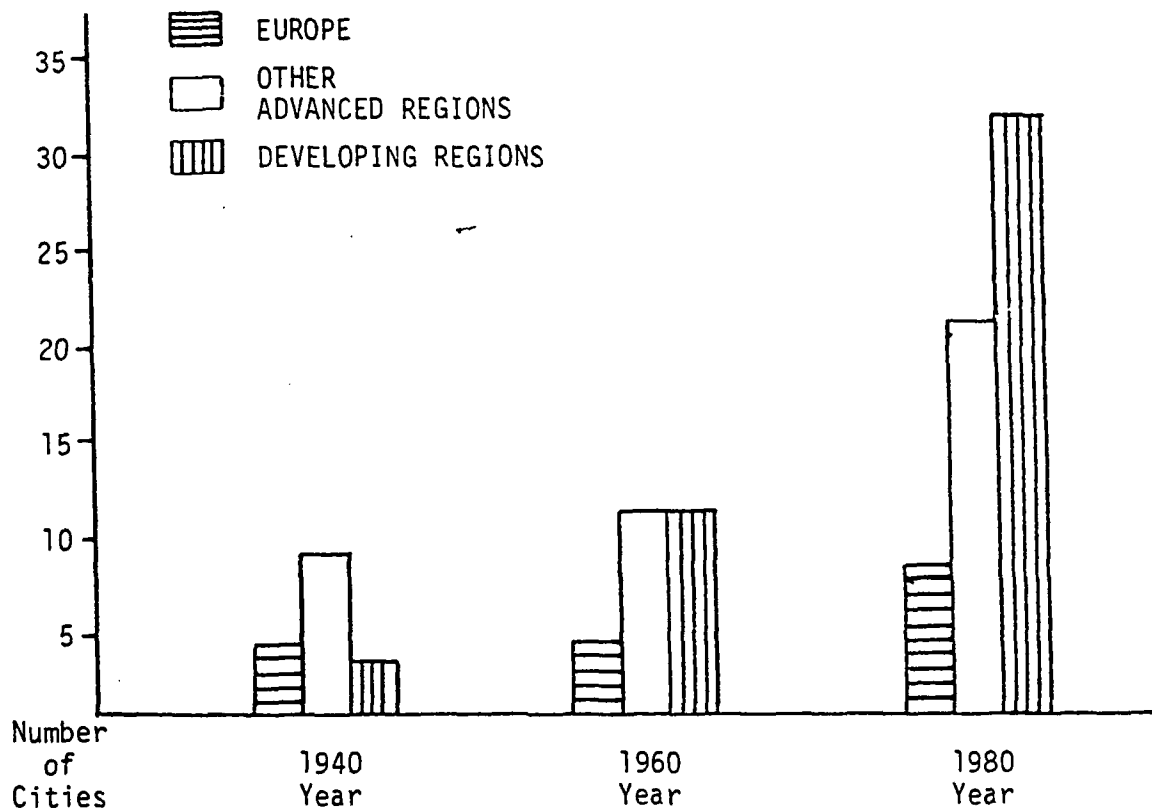
NUMBER OF CITIES WITH MORE THAN 2.5 MILLION PEOPLE

8. In 1980, how many European cities had more than 2.5 million people?

    (f) 21   (h) 32
    (g)   9   (j)   4

9. In what year did two regions have the same number of large cities?

    (a) 1960   (c) 1980
    (b) 1940   (d) No year

Use the following line graph to answer Questions 10 and 11.

Name _____

RANGE TO TARGET IN METERS
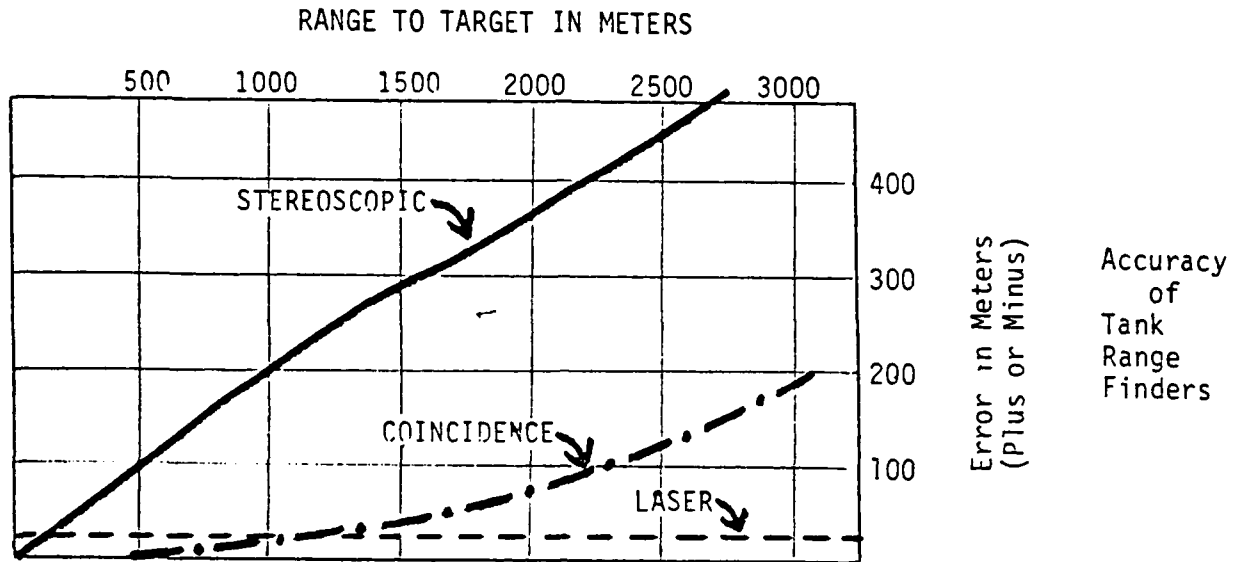
10. What is the error (plus or minus) of a stereoscopic range finder at 1000 meters?

    (f) 20 meters   (h) 200 meters
    (g) 300 meters   (j) 100 meters

11. This graph tells you:

    (a) Stereoscopic range finders are less accurate than coincidence range finders.

    (b) Laser range finders are very accurate at any range.

    (c) Below 1000 meters, coincidence range finders are a little bit more accurate than laser range finders.

    (d) All of the above.

Use the pie graph to answer Questions 12 and 13.
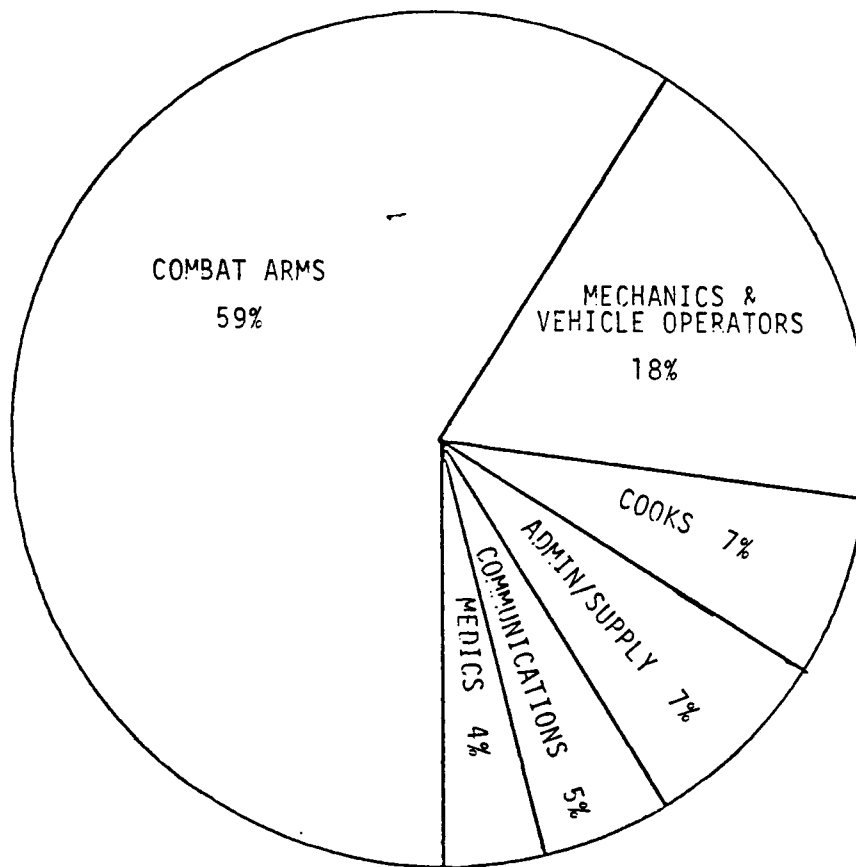
Name _____

COMBAT ARMS
59%

MECHANICS &
VEHICLE OPERATORS
18%

COOKS 7%

ADMIN/SUPPLY 7%

COMMUNICATIONS 5%

MEDICS 4%

Percentage of
Different Types
of MOSs, for
MOSs with More
than 100
Individuals,
Fort Ord, 1981

12. What percentage of soldiers at Fort Ord are <u>not</u> in combat arms MOSs?

    (f) 41%   (h) 23%
    (g) 59%   (j) 18%

13. What is the smallest MOS group?

    (a) Admin/Supply   (c) Combat Arms
    (b) Medics   (d) Communications

Use the meter below to answer Questions 14-16.
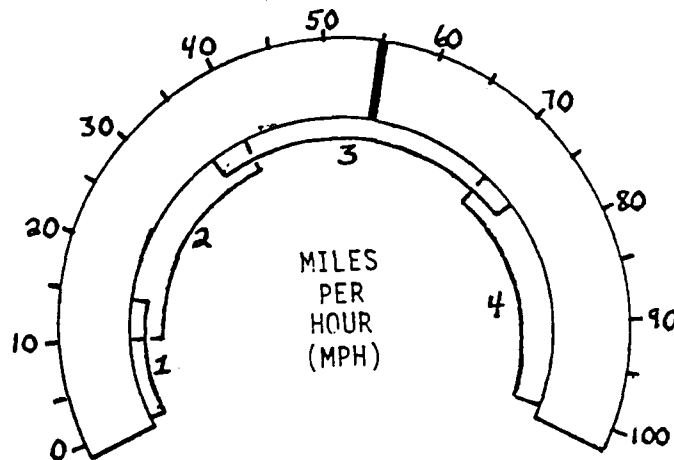
14. If the car were traveling at 38 mph, what gear should it be in?

      (f) Third   (h) First or second
      (g) Second   (j) Second or third

15. How slowly should you be going before you downshift from 4th to 3rd?

      (a) 70 mph   (c) Between 70 and 75 mph
      (b) 30 to 35 mph   (d) 80 mph

16. How fast is this car going right now?

      (f) 55 mph   (h) 60 mph
      (g) 50 mph   (j)   3 mph

ANSWER SHEET
MODULE REVIEW
Locators and Visuals   Name _____

	a	b	c	d			a	b	c	d
1.	0	0	0	0		9.	0	0	0	0

	f	g	h	j			f	g	h	j
2.	0	0	0	0		10.	0	0	0	0

	a	b	c	d			a	b	c	d
3.	0	0	0	0		11.	0	0	0	0

	f	g	h	j			f	g	h	j
4.	0	0	0	0		12.	0	0	0	0

	a	b	c	d			a	b	c	d
5.	0	0	0	0		13.	0	0	0	0

	f	g	h	j			f	g	h	j
6.	0	0	0	0		14.	0	0	0	0

	a	b	c	d			a	b	c	d
7.	0	0	0	0		15.	0	0	0	0

	f	g	h	j			f	g	h	j
8.	0	0	0	0		16.	0	0	0	0

The <u>table of contents</u> of a book or manual tells you what is in the manual. It is arranged <u>consecutively</u>. That is, it tells you what is in the first chapter or section, then the second chapter or section, and so on to the end of the book.

Usually, the table of contents is written in <u>outline</u> form. Big subject areas like chapters are written at the left hand edge of the subject column. Smaller subject areas are <u>indented</u> (set in) to the right. In the right hand column, you will see the <u>page number</u> where you can find information about the subject. Sometimes you will find a <u>paragraph number</u>, too. It may be written in either the right hand or the left hand column.

Here is a part of a Table of Contents from a Skill Qualification Test (SQT) Notice for 11B Infantrymen. Notice that it tells you the <u>major</u> subject areas. For example, you will find "Component Descriptions" in Paragraph 5 on Page 4.

TABLE OF CONTENTS

PARAGRAPH	TITLE	PAGE
1	PURPOSE	1
2	SQT DESCRIPTION	1
3	SQT PREPARATION	2
4	TRACKING	3
5	COMPONENT DESCRIPTIONS	4
6	THE EXPERT INFANTRYMAN BADGE (EIB) TEST	6

Sometimes the table of contents gives you <u>extra</u> information. Look at the following example. It is another part of the Table of Contents from the 11B SQT notice:

Locators and Visuals
Activity Sheet 1A
Table of Contents   Name _____

APPENDIX B - PRACTICE HOC (SCORESHEETS FOR HANDS-ON
                            TEST AND ALTERNATE TESTS)

     This table of contents tells you what is in Appendix B of the SQT
notice. Each task is listed, followed by the page number. You will also
find a "SM Reference." This tells you which SM (Soldier's Manual) will
tell you more about the task. For instance, you can find the Practice
Hands-On Component for Preparing an M72A2 LAW for Firing on Page B-17. You
also see that FM 21-2 published in May 1981 will tell you more about the task.

Instructions: Use the following Table of Contents to answer Questions 1-4.
Mark the letter of the correct answer on your answer sheet.

Locators and Visuals
Activity Sheet 1A
Table of Contents   Name _____

THE INFANTRY PLATOON AND SQUAD
(INFANTRY, AIRBORNE, AIR ASSAULT, RANGER)

CONTENTS _____ PAGE

Locators and Visuals
Activity Sheet 1A
Table of Contents   Name _____

1. "Defense" begins on page

        (a) 3-1   (c) 4-1
        (b) 4-2   (d) iv

2. Section II: Movement is in Chapter:

        (f) 1   (h) 3
        (g) 2   (j) 4

3. Which Section begins on Page 4-17?

        (a) Control Measures   (c) References
        (b) Common Patrolling Tasks   (d) Defense

4. Page 3-26 is in:

        (f) Appendix B   (h) Chapter 2:
        (g) Chapter 3,   Preparation for Combat
           Section III: Fire and Maneuver (j) Section IX:
                                       Infiltration

Use the Table of Contents on the following page to answer Questions 5-8.

APPENDIX A - PRACTICE SC (INSTRUCTIONS, SAMPLE QUESTIONS,
AND ANSWER SHEET)

Task Number and Title	Page	SM Reference
(1) 031-503-1009, Drink, Use the Latrine, and Sleep While Wearing Protective Clothing	A-5	FM 21-2 (May 81)
(2) 031-503-1005, React to a Nuclear Hazard	A-6	FM 7-11B1/2 (Jul 78)
(3) 071-326-5703, Construct Individual Fighting Positions	A-7	FM 7-11B1/2 (Jul 78)
(4) 071-329-1002, Determine the Grid Coordinates of a Point on a Military Map Using the Military Grid Reference System	A-8	FM 21-2 (May 81)
(5) 071-318-2202, Engage Targets with an M72A2 LAW	A-9	FM 21-2 (May 81)

5. On what page would you find the practice SC for nuclear hazards?

        (a) A-5   (c) A-7
        (b) A-6   (d) A-8

6. In which Soldier's Manual would you find more information about constructing individual fighting positions?

        (f) FM 21-2   (h) A-7
        (g) A-9   (j) FM 7-11B1/2

7. Which page has the practice SC for Task #071-318-2202?

        (a) FM 21-2   (c) A-9
        (b) A-5   (d) A-8

8. What task is discussed on Page A-5?

        (f) FM 21-2   (h) Engage Targets With An M72ALAW
        (g) Task 031-503-1005   (j) Drink, Use Latrine, and Sleep
                                      While Wearing Protective Clothing

Use the Table of Contents on the following page to answer Questions 9-12.

SOLDIER'S MANUAL OF COMMON TASKS
SKILL LEVEL 1

TABLE OF CONTENTS

9. Which section begins on Page 41?

> (a) See   (c) Navigate
> (b) Communicate   (d) Shoot

10. Which task is discussed on Page 55?

     (f) Navigate   (h) Determine Direction Using
     (g) Determine a Magnetic   Field Expedient Methods
          Azimuth Using a Compass   (j) 071-329-1001

11. What is the number of the task that begins on Page 37?

     (a) II   (c) 071-329-1018
     (b) 441-091-1040   (d) 113-571-1016

12. "Estimate Range" begins on Page

     (f) 29   (h) I
     (g) 25   (j) II

ANSWER SHEET
Locators and Visuals
Activity Sheet 1A
Table of Contents

Name _____

	a	b	c	d
1.	0	0	0	0

	f	g	h	j
2.	0	0	0	0

	a	b	c	d
3.	0	0	0	0

	f	g	h	j
4.	0	0	0	0

	a	b	c	d
5.	0	0	0	0

	f	g	h	j
6.	0	0	0	0

	a	b	c	d
7.	0	0	0	0

	f	g	h	j
8.	0	0	0	0

	a	b	c	d
9.	0	0	0	0

	f	g	h	j
10.	0	0	0	0

	a	b	c	d
11.	0	0	0	0

	f	g	h	j
12.	0	0	0	0

An _index_ is like a table of contents. It tells you what is in a book or manual. A table of contents is a listing _in order_, page by page, but an index lists subjects in _alphabetical order_.

The index has main topics and subtopics. If you want to find a subject in the index, look for the _main topic_ of what you want to find. For instance, look at this part of an index:

Let's say you want to know about cleaning ammunition. _Ammunition_ is your main topic, not _cleaning_. So you look for "ammunition" in the index. Under Ammunition you will find _care, cleaning_, paragraph 2-23, page 55.

Locators and Visuals
Activity Sheet 2A
Index   Name _____

Instructions: Answer Questions 1-4 by using the part of an index shown below.
Mark the correct answer on your Answer Sheet.

1. Information about nonartillery observers is on page

    (a) 3, 40   (c) 53
    (b) 36   (d) 23

2. Information about distance is in paragraphs

    (f) 10, 11   (h) 16, 17
    (g) 8, 11   (j) 27

3. Information about marking rounds is on page

      (a) 19   (c) 39
      (b) 8, 11   (d) 29

4. Information about the general conduct of fire is in paragraph

      (f) 31   (h) 8
      (g) 6   (j) 23, 52

Use the part of an index below to answer Questions 5-8:

5. To find out about nuclear weapons, look on Pages

      (a) 4-5, 7-3e   (c) 4-5, 7-3e, 4-2, 7-2
      (b) 4-2, 7-2   (d) 1-2c

6. Conduct of the offense is shown in paragraphs

      (f) 5-9   (h) 5-15-5-19
      (g) 5-10, 5-7   (j) 5-12

7. Low-visibility attack is discussed on page

      (a) 5-4   (c) 5-7b
      (b) 5-43-5-45   (d) 5-20

8. One place to read about maneuver units is paragraph

      (f) 3-12d   (h) 1-2a
      (g) 1-9   (j) 1-1

Locators and Visuals
Activity Sheet 2A
Index   Name _____

Use the partial index below to answer Questions 9-12:

9.   Information about reducing stoppages is on page

        (a) 2-16   (c) 5-4
        (b) 42   (d) 88

10. The use of sound targets in the conduct of trials for target detection
    is shown in paragraph

        (f) 6-11   (h) 6-9
        (g) 105   (j) 4-2

11. Information on the principles of zeroing can be found in paragraphs

        (a) 4-8, 4-9   (c) 85, 86
        (b) 3-3   (d) 3-8

12. Information about constructing target detection ranges is on page

        (f) 105   (h) 94
        (g) 155   (j) 78

Name _____

1.	a	b	c	d
	0	0	0	0

2.	f	g	h	j
	0	0	0	0

3.	a	b	c	d
	0	0	0	0

4.	f	g	h	j
	0	0	0	0

5.	a	b	c	d
	0	0	0	0

6.	f	g	h	j
	0	0	0	0

7.	a	b	c	d
	0	0	0	0

8.	f	g	h	j
	0	0	0	0

9.	a	b	c	d
	0	0	0	0

10.	f	g	h	j
	0	0	0	0

11.	a	b	c	d
	0	0	0	0

12.	f	g	h	j
	0	0	0	0

ANSWER SHEET

In manuals and books, tables are drawings or charts that give you data or facts about things. Tables always have two dimensions: they have columns and rows. Here is a simple table. It shows the primary and secondary colors used to mark different kinds of contaminated or dangerous areas.

COLUMN   NAMES

| DANGER | PRIMARY COLORS | SECONDARY COLORS | |
		MARKINGS	INSCRIPTIONS
RADIOLOGICAL CONTAMINATION	WHITE	NONE	BLACK
BIOLOGICAL CONTAMINATION	BLUE	NONE	RED
CHEMICAL CONTAMINATION	YELLOW	NONE	RED
CHEMICAL MINEFIELDS	RED	WHITE STRIPE	YELLOW
BOOBYTRAPPED AREAS	RED	WHITE STRIPE	NONE
UNEXPLODED MUNITIONS	RED	WHITE (BOMB)	NONE

ROWS

The columns are named at the top. The rows are named at the side. If you want to find out about the markings on signs for boobytrapped areas, do this:

(1) Find the row marked "Boobytrapped Areas." The name of the row is at the left.

(2) Stay in that row, but move to the right until you get to the column named "Markings". Then read that the markings on signs for boobytrapped areas consist of a white stripe.

You could also do it backwards. Find the column named "Markings," then go down to the row named "Boobytrapped Areas." Either way, you are looking for where the column and the row meet.

Sometimes the rows and columns have names which are not written down. You can group the things in a row or column under other names than the name on the table. For instance, in the table above, you could give a name to all the things that tell you about a danger sign. You could call them identifiers. So for a sign showing biological contamination, the identifiers are blue primary color, no markings, and red inscription.

651

Name _____

Instructions: Look at the tables below. Then answer the questions under each table. Mark your answers on the Answer Sheet.

Use the table below to answer Questions 1-4.

TABLE 1. RESULTS OF RADIATION EXPOSURE

Radiation Dose in Rads	Early Symptoms	Work Effectiveness	Fatalities
0 to 70	Less than 5% hospitalization.	Full	None
150	Approximately 5% within 6 hours.	Reduced effectiveness while vomiting, depending on task. Ineffective if hospitalized.	None
650	Within 2 hours	Symptoms continue intermittently for next few days. Effectiveness reduced significantly for 2d to 6th day. Hospitalization required.	More than half at approximately 16 days.
2,000 to 3,000	Within 5 minutes	Immediate, temporary incapacitation for a period of 3-40 minutes, followed by recovery period during which personnel efficiency is impaired.	High rate. In approximately 7 days.
8,000	Within 5 minutes	Immediately, permanent incapacitation for personnel performing physically demanding tasks. No period of latent "recovery".	High rate in 1-2 days.
18,000	Immediate	Permanent incapacitation for personnel performing even undemanding tasks.	100% Within 24 hours.

1. In which column can you find the reading "Within 2 hours"?

    (a) Work Effectiveness   (c) Early Symptoms
    (b) Fatalities   (d) 8,000

2. What is the fatality rate for people exposed to 0 to 70 rads?

    (f) 100%   (h) High rate
    (g) None   (j) More than half

3. If a group of soldiers shows symptoms <u>within 5 minutes</u>, what is the
   the fatality rate?

    (a) High rate   (c) 50%
    (b) 100%   (d) None

4. "Immediate, temporary incapacitation" is the work effectiveness problem
   for what dose in rads?

    (f) 650   (h) 8,000
    (g) 18,000   (j) 2,000 to 3,000

Use the table below to answer Questions 5-8:

TABLE 2.   FIRING ANTITANK WEAPONS FROM
           BUILDINGS AND ENCLOSED AREAS

WEAPON	MIN ROOM SIZE, FRAME STRUCTURE	MIN ROOM SIZE, MASONRY STRUCTURE	MIN VENT SIZE*
LAW	7' x 10'	Min of 4' to back wall	20 Ft^2
DRAGON	15' x 15'	17' x 11'	20 Ft^2
TOW	20' x 30'	20' x 20'	20 Ft^2
All glass should be removed from windows, doors and within rooms. Soft furniture and curtains should be left to absorb sound. Firers must wear helmets and ear plugs. Don't stand behind weapons being fired. *Open door and window space.			

5. What is the minimum size of room from which you can fire the DRAGON if the
   room is made of masonry?

    (a)   7' x 10'   (c) 20' x 20'
    (b) 17' x 11'   (d) 20 Ft^2

653

6. The sizes of frame structures you need for the three different weapons
   make up the _frame range_. 15' x 15' is one measurement in the frame range.
   What are the other two measurements?

   (f) 7' x 10', 20 Ft^2 (h) DRAGON, 17' x 11'

   (g) 17' x 11', 20 Ft^2 (j) 7' x 10', 20' x 30'

7. Which weapons have a minimum vent size of 20 Ft^2?

   (a) LAW and DRAGON   (c) All three weapons
   (b) TOW and LAW   (d) DRAGON only

8. How many sizes of frame structures are shown?

   (f) 3   (h) 4
   (g) 17' x 11'   (j) 2

Use the table below to answer Questions 9-12.

RESPONSIBILITY FOR DIRECTION AND COORDINATION	AD UNITS	BRIGADE	DIVISION	CORPS	AIR FORCE
COUNTERFIRE PROGRAM			X		
EW OPERATIONS			X	X	
INTEL, SURV, RECON OPNS			X	X	X
AIR DEFENSE SUPPRESSION				X	X
AIR DEFENSE OPERATIONS	X				X
AIR SPACE MANAGEMENT	X	X	X	X	

9. Who has responsibility for the counterfire program?

   (a) AD Units   (c) Division
   (b) Brigade   (d) Corps

10. How many units are responsible for air defense operations?

    (f) 2   (h) 4
    (g) 3   (j) 1

Name _____

11. How many types of programs does the Corps have responsibility for?

      (a) 1   (c) 2

      (b) 4   (d) 3

12. Which units have responsibility for three or more programs?

      (f) Air Force; AD Units;   (h) AD Units; Brigade

           Corps

      (g) Intel,Surv,Recon Opns;   (j) Division; Corps; Air Force

           Air Space Management

ANSWER SHEET
Locators and Visuals
Activity Sheet 3A
Tables

Name _____

	a	b	c	d
1.	0	0	0	0

	f	g	h	j
2.	0	0	0	0

	a	b	c	d
3.	0	0	0	0

	f	g	h	j
4.	0	0	0	0

	a	b	c	d
5.	0	0	0	0

	f	g	h	j
6.	0	0	0	0

	a	b	c	d
7.	0	0	0	0

	f	g	h	j
8.	0	0	0	0

	a	b	c	d
9.	0	0	0	0

	f	g	h	j
10.	0	0	0	0

	a	b	c	d
11.	0	0	0	0

	f	g	h	j
12.	0	0	0	0

Bar graphs compare two or more things that have a quantity or number value. For bar graphs, the length of the bar by each item tells you how much of that item you have.

Look at this simple bar graph:
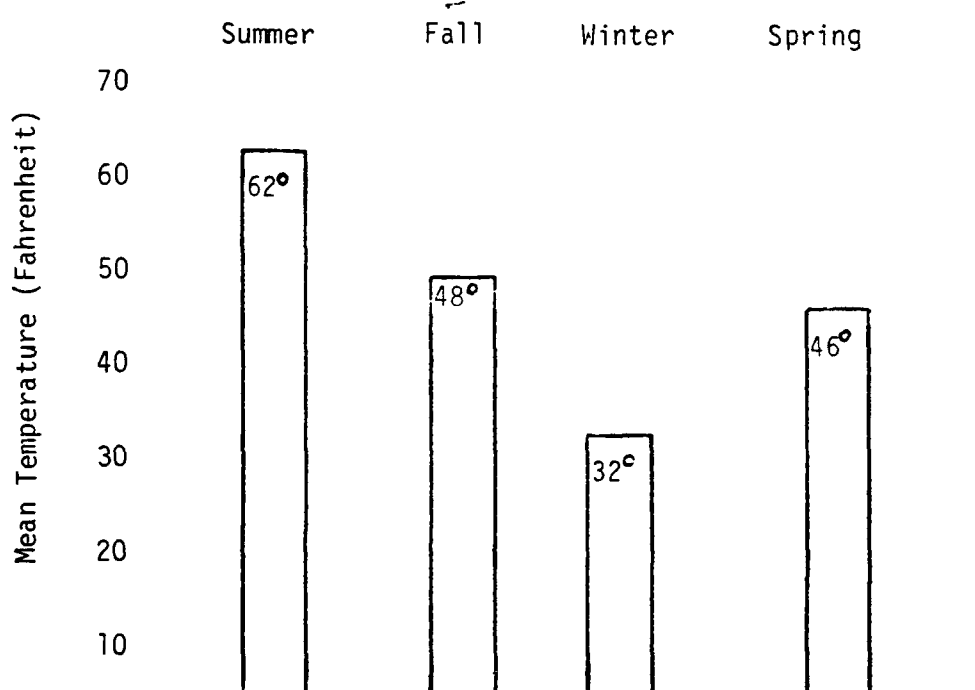
This shows you the mean temperature for each season in Germany. You can see that the bar for summer reaches just above the 60 degree mark, and the bar for winter reaches only above the 30 degree mark. It is also easy to see that the winter temperatures are about half the summer temperatures. You can see this without even reading the numbers, just by looking at the size of the bars.

Some bar graphs have vertical (up-and-down) bars. Others have horizontal side-to-side) bars. Here is an example of a horizontal bar graph:

ARMY TRANSPORT AIRCRAFT

657
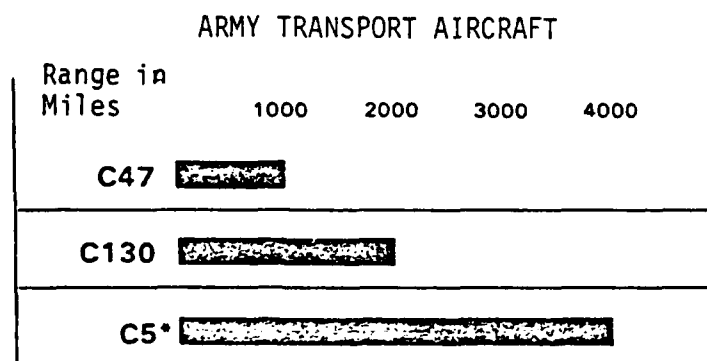
> This shows that the Army C47 transport plane had a range of only 1000 miles. The C5 transport has a range of four times that much, at 4000 miles. It is easy to see how much transport plane range has improved since the C47 was used.

Instructions: Read each of the bar graphs below, then answer the questions. Mark your answers on the Answer Sheet.

Use Graph #1 to answer Questions 1-4:

GRAPH #1
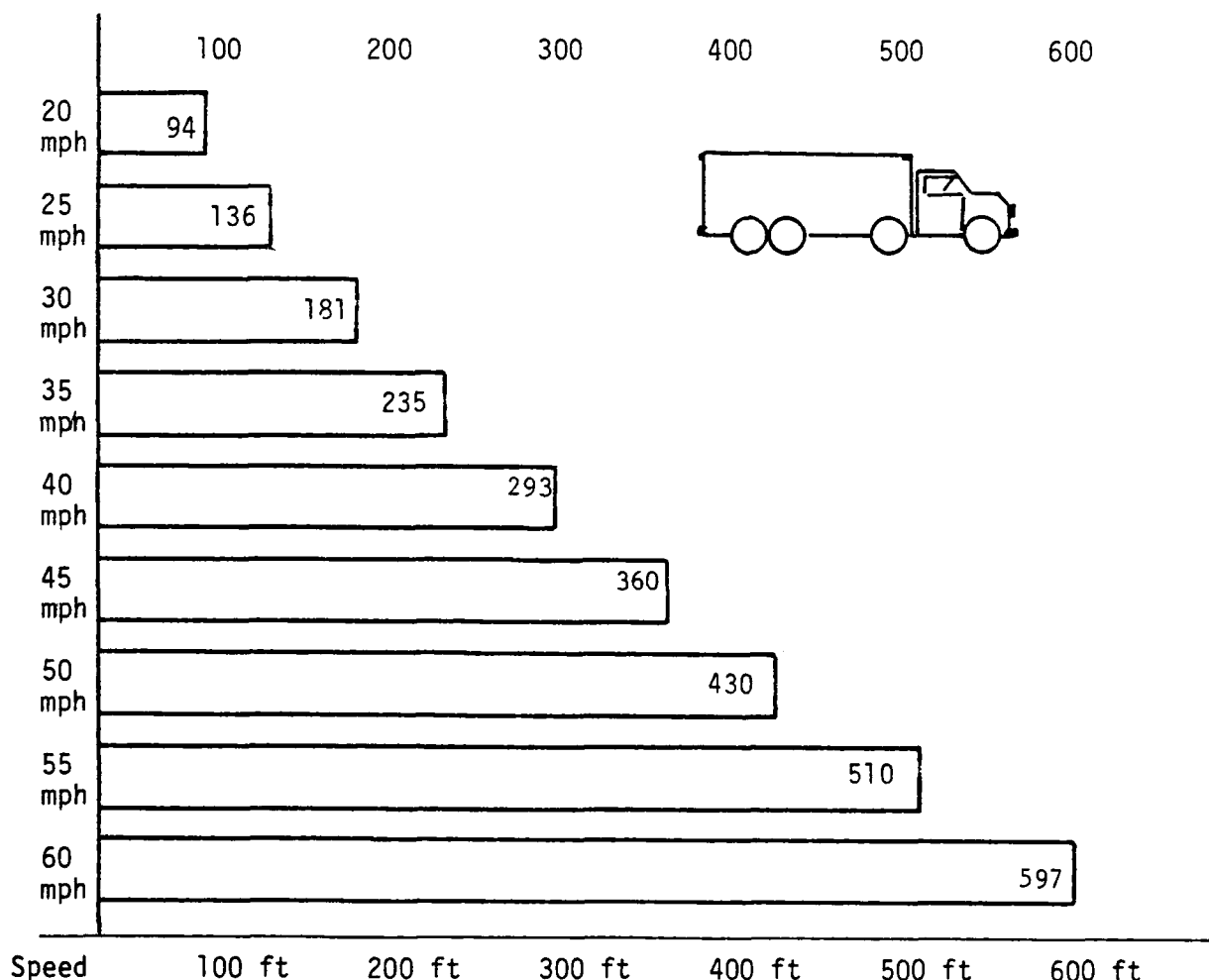
	100	200	300	400	500	600
20 mph	94					
25 mph	136					
30 mph	181					
35 mph	235					
40 mph	293					
45 mph	360					
50 mph	430					
55 mph	510					
60 mph	597					

Speed   100 ft   200 ft   300 ft   400 ft   500 ft   600 ft

TOTAL DRIVER STOPPING DISTANCES FOR VEHICLES WITH A
GROSS WEIGHT OF OVER 10,000 POUNDS (THREE AXLES OR MORE)

1. If a truck is moving at 40 mph, how many feet does it take to come to a stop?

(a) 94   (c) 293
(b) 181   (d) 430

2. A truck takes 510 feet to stop. How fast was it going?

        (f) 75 mph   (h) 30 mph
        (g) 55 mph   (j) 60 mph

3. Truck A is going 40 mph and stops in 293 feet. Truck B stops in about
    twice as many feet. How fast was Truck B going?

        (a) 40 mph   (c) 80 mph
        (b) 60 mph   (d) 120 mph

4. If a truck takes 155 feet to stop, how fast was it going?

        (f) Between 25 and 30 mph   (h) 25 mph
        (g) Between 30 and 35 mph   (j) 30 mph

Use Graph #2 to answer Questions 5-8.

RANGE OF SOME
U.S. ARTILLERY
WEAPONS
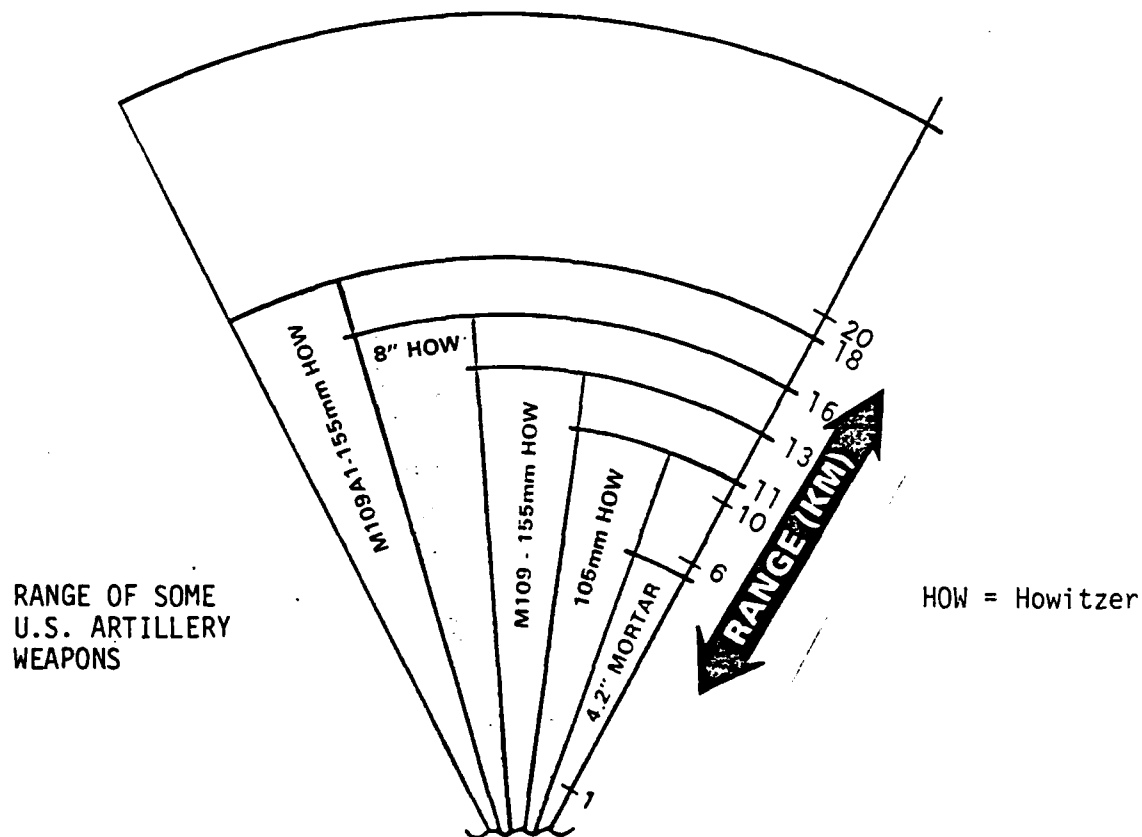
HOW = Howitzer

5. What is the range of the M109-155mm Howitzer?

    (a) 20 km (kilometers)   (c) 13 km
    (b) 16 km   (d) 11 km

6. Which goes the farthest:

    (f) 105 mm Howitzer   (h) M109-155 mm Howitzer
    (g) 4.2" Mortar   (j) M109A1-155 mm Howitzer

7. Which weapon has a range of 16 km?

    (a) 8" Howitzer   (c) M109A1-155 mm Howitzer
    (b) 105 mm Howitzer   (d) M109-155 mm Howitzer

8. Which weapon has a range of less than 10 km?

    (f) 105 mm Howitzer   (h) All the weapons
    (g) 4.2" Mortar   (j) 8" Howitzer

Use Graph #3 below to answer Questions 9-12.
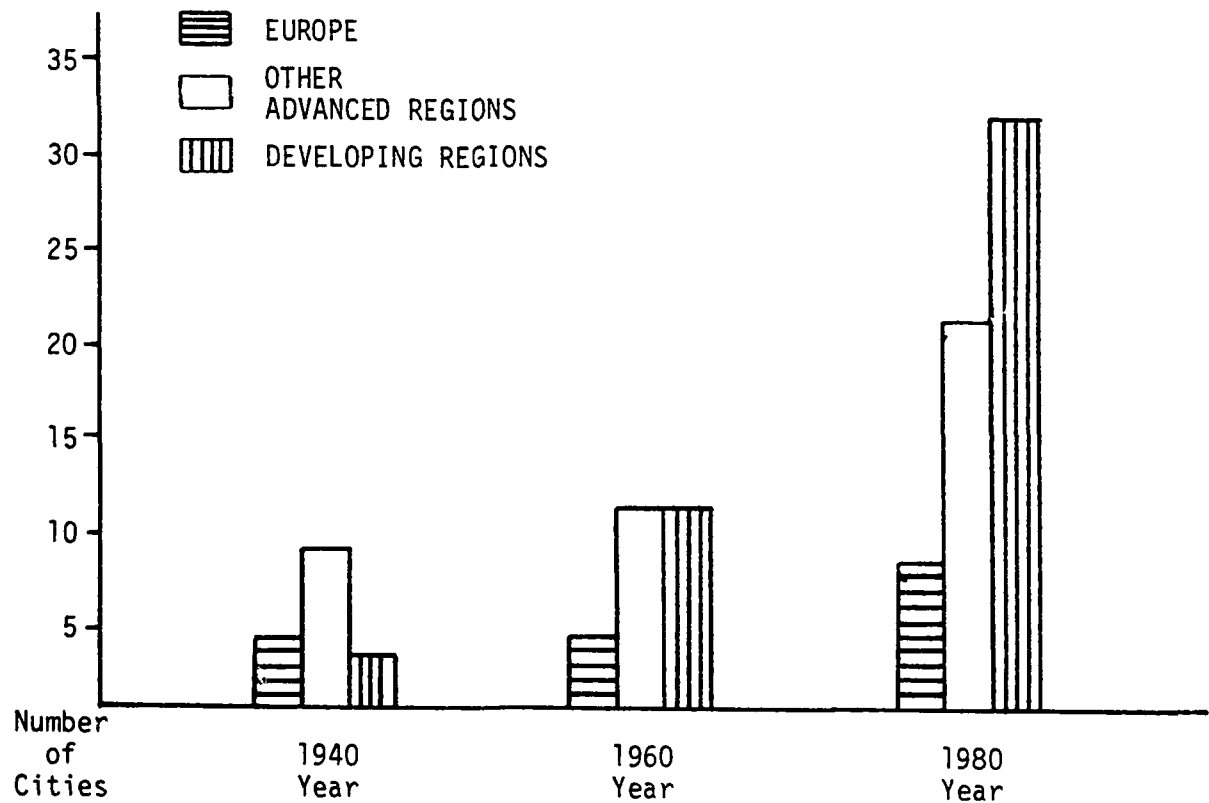
NUMBER OF CITIES WITH MORE THAN 2.5 MILLION PEOPLE

9. How many large cities were in Europe in 1940?

        (a) 4   (c) 3
        (b) 5   (d) 9

10. Which two regions had the same number of large cities in 1960?

        (f) Europe and Other   (h) Developing Regions and
            Advanced Regions   Other Advanced Regions

        (g) Europe and   (j) None of the above
            Developing Regions

11. Which region had the same number of large cities in two different years?

        (a) Other Advanced Regions   (c) Developing Regions
        (b) None of the regions   (d) Europe

12. Which region had the fastest growth rate for large cities?

        (f) Europe   (h) Developing Regions
        (g) Other Advanced Regions   (j) All had the same rate

ANSWER SHEET
Locators and Visuals
Activity Sheet 4A
Bar Graphs

Name _____

1.
a	b	c	d
0	0	0	0

2.
f	g	h	j
0	0	0	0

3.
a	b	c	d
0	0	0	0

4.
f	g	h	j
0	0	0	0

5.
a	b	c	d
0	0	0	0

6.
f.	g	h	j
0	0	0	0

7.
a	b	c	d
0	0	0	0

8.
f	g	h	j
0	0	0	0

9.
a	b	c	d
0	0	0	0

10.
f	g	h	j
0	0	0	0

11.
a	b	c	d
0	0	0	0

12.
f	g	h	j
0	0	0	0

Name-_____

Line graphs are like bar graphs. They show amounts of things. But line graphs also show <u>change</u>. The change can be over time, or temperature, or any other thing that changes. Here is a line graph:
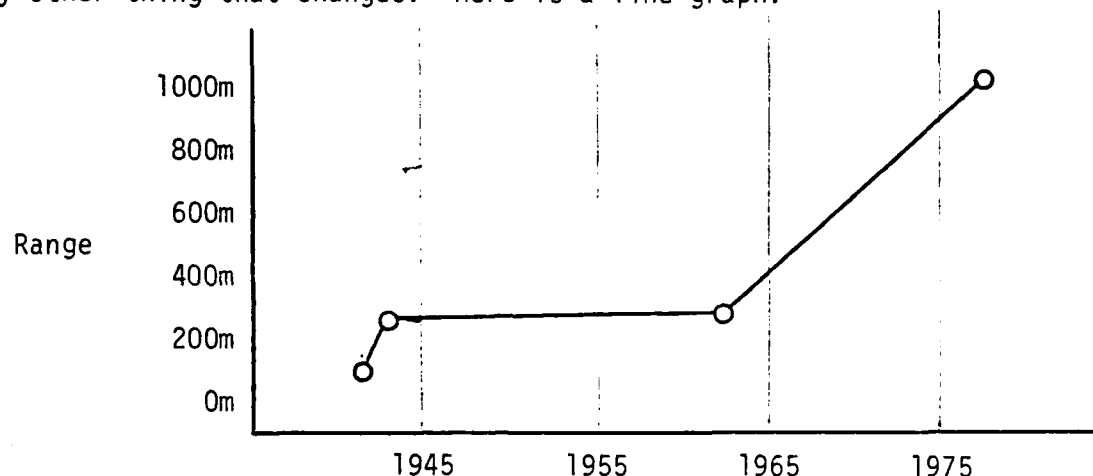
This shows the <u>top effective range for individual anti-tank weapons</u> for different years. In 1945, the effective range was between 200 and 300 meters. The range didn't really start to improve until around 1965. Soon after 1975, the top effective range for individual antitank weapons was 1000 meters. You can see by looking at the graph that individual antitank weapons got much better from 1965 to 1975.

Instructions: Look at each graph below. Then answer the questions. Mark your answers on the answer sheet.

Use Graph #1 to answer Questions 1-4:
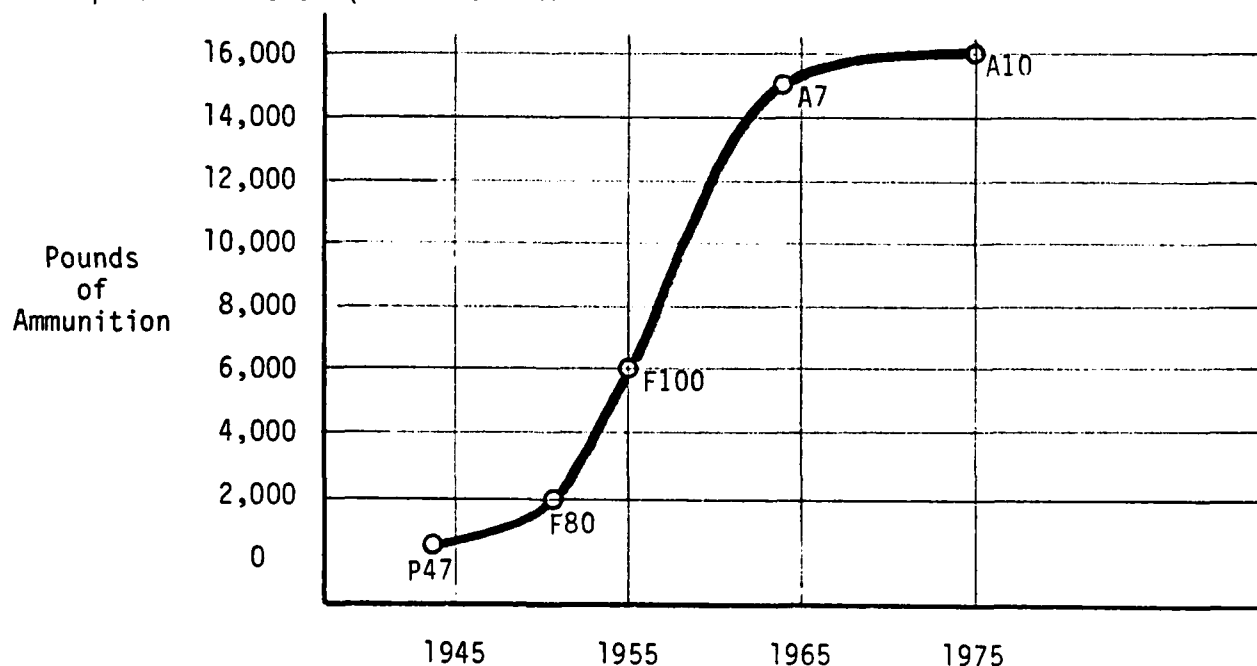
Pounds of Ammunition that Different US Aircraft
Could Carry in Different Years

663

1. How many pounds of ammunition could the F80 carry?

       (a)   80   (c) 2,000
       (b) 500   (d) 6,000

2. In what year could US planes carry 15,000 pounds?

       (f) 1975   (h) 1955
       (g) 1968   (j) 1964

3. Which plane could carry 500 pounds of ammunition?

       (a) P47   (c) F100
       (b) F80   (d) A7

4. In 1955, how many pounds of ammunition could US planes carry?

       (f) 2,000   (h) 16,000
       (g) 6,000   (j) 15,000

Use Graph #2 to answer Questions 5-8.

Maximum Effective Range of Warsaw Pact
Tank Main Guns and U.S. Antitank Weapons
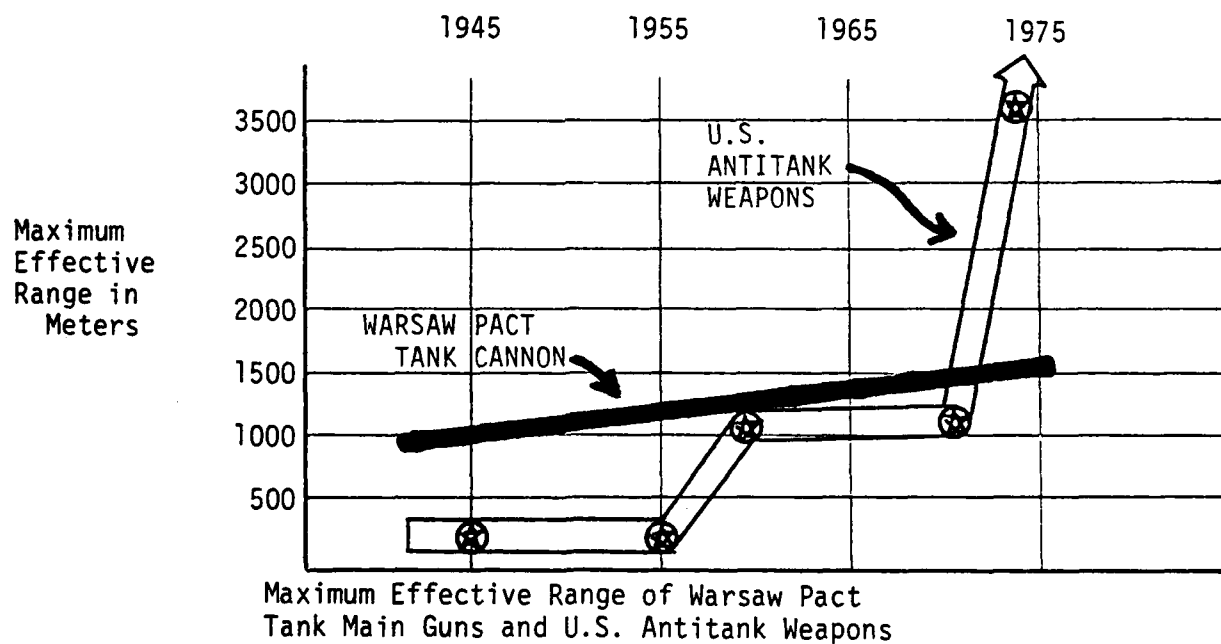
5. In 1945, what was the maximum effective range of U.S. antitank weapons?

       (a) 250 meters   (c) 1010 meters
       (b) 500 meters   (d) 3500 meters

6. In 1965, which weapon had a maximum effective range of almost 1500 meters?

    (f) US antitank weapons   (h) Both weapons
    (g) Warsaw Pact tanks   (j) Neither weapon

7. In the early 1970s, the U.S. developed the TOW antitank weapon. What was the _effect_ of inventing the TOW?

    (a) US antitank weapons   (c) US antitank weapons became
           dropped in range   longer in range than Warsaw
    (b) Warsaw Pact tanks   Pact tanks
           dropped in range   (d) Warsaw Pact tanks can still
                            shoot farther than US
                            antitank weapons

8. For what period of time did US antitank weapons have an effective range of about 1000 meters?

    (f) 1945-1955   (h) 1958-1972
    (g) 1955-1958   (j) 1972-1975

Use Graph #3 to answer Questions 9-12.

RANGE TO TARGET IN METERS
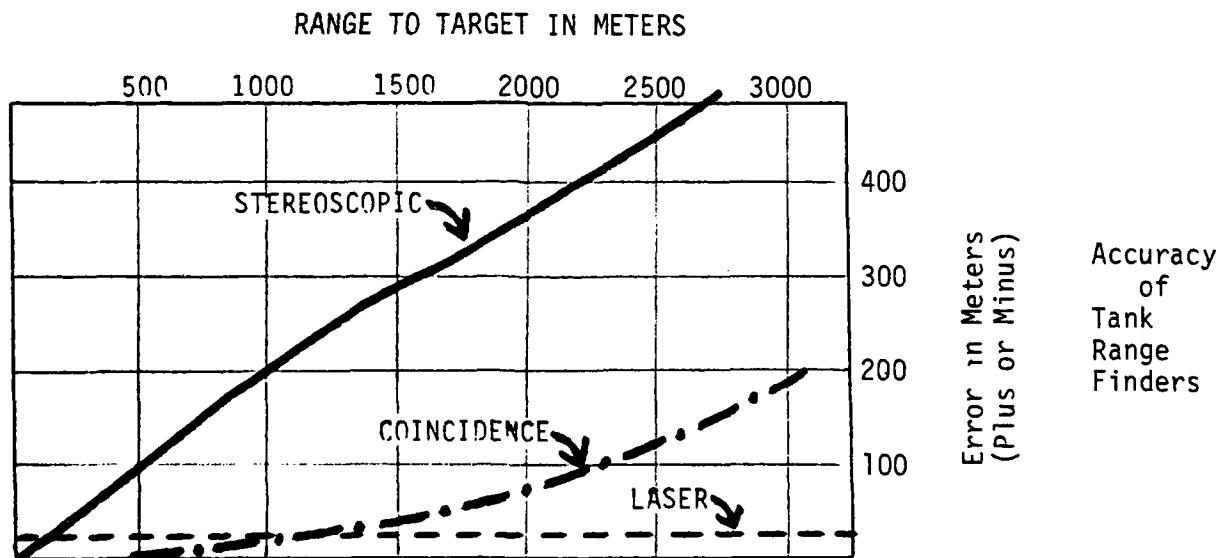
9. This graph shows that:

    (a) At longer ranges, some tank range finders are less accurate than at shorter ranges.
    (b) Coincidence range finders are more accurate than stereoscopic range finders.
    (c) Laser range finders are very accurate at any range.
    (d) All of the above.

10. At 2500 meters, what is the error of the stereoscopic range finder?

    (f) Over 400 meters   (h) About 100 meters
        plus or minus   plus or minus
    (g) Less than 300 meters   (j) Almost 0 meters
        plus or minus   plus or minus

11. At what range does the coincidence range finder have an error of 100 meters plus or minus?

    (a) 2000 meters   (c) 2300 meters
    (b) 2500 meters   (d) 3000 meters

12. Which is the most accurate at 500 meters of range?

    (f) Stereoscopic range finder   (h) Laser range finder
    (g) Coincidence range finder   (j) Both coincidence and
                                    laser range finder

ANSWER SHEET

Locators and Visuals
Activity Sheet 5A
Line Graphs   Name _____

1.   a   b   c   d
     0   0   0   0

2.   f   g   h   j
     0   0   0   0

3.   a   b   c   d
     0   0   0   0

4.   f   g   h   j
     0   0   0   0

5.   a   b   c   d
     0   0   0   0

6.   f   g   h   j
     0   0   0   0

7.   a   b   c   d
     0   0   0   0

8.   f   g   h   j
     0   0   0   0

9.   a   b   c
     0   0   0   0

10. f   g   h   j
     0   0   0   0

11. a   b   c   d
     0   0   0   0

12. f   g   h   j
     0   0   0   0

There is another kind of graph that is related to fractions and percents. It is called a pie graph, because it is cut into sections like a pie. The whole graph shows all (100%) of a thing. The slices or sections show what makes up the whole pie. Here is a pie graph:

SGT. CARTER'S EXPENDITURES
FOR THE MONTH OF JUNE

FOOD
25%

CAR REPAIR
&
GASOLINE
20%

RENT
30%

CLOTHING
11%

RECPE-
ATION
8%
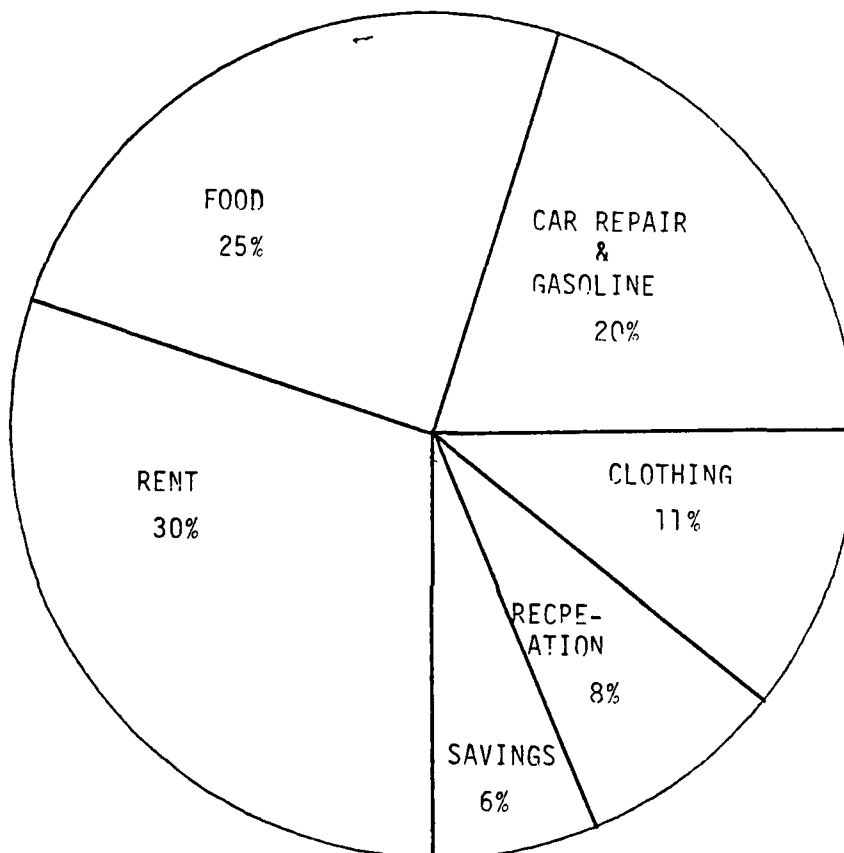
SAVINGS
6%

This shows how SGT Carter, who lives off-post, spent his paycheck for the month of June.

You can see that he spent the largest amount of his pay, 30%, on rent. The next largest amount, 25%, went for food. The smallest part of his pay, 6%, went into his savings account.

If you wanted to see what part of his paycheck SGT Carter spent on rent, food, car repair and gasoline combined, you just add those three sections of the pie together. 30% + 25% + 20% = 75% spent on rent, food, car repair and gasoline.

Instructions: Read the pie graphs below. Then answer the questions. Mark
the correct answer on your answer sheet.

Use Pie Graph #1 to answer Questions 1-5.

PIE GRAPH #1
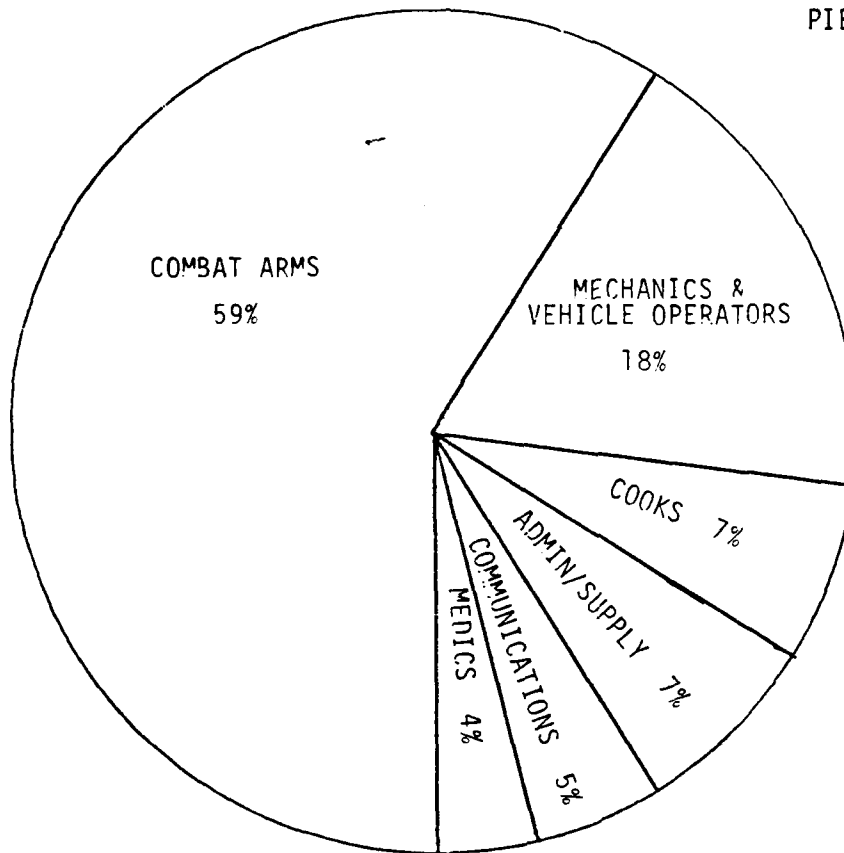
COMBAT ARMS
59%

MECHANICS &
VEHICLE OPERATORS
18%

COOKS 7%

ADMIN/SUPPLY 7%

COMMUNICATIONS 5%

MEDICS 4%

Percentage of
Different Types
of MOSs, for
MOSs with More
than 100
Individuals,
Fort Ord, 1981

1. What was the largest MOS group at Fort Ord in 1981?

    (a) Medics   (c) Cooks
    (b) Administration/Supply   (d) Combat Arms

2. What percentage of people are in Communications MOSs?

    (f) 9%   (h) 5%
    (g) 96%   (j) 7%

3. Which two MOS groups had the same percentage of members?

        (a) Medics & Communications
        (b) Cooks & Admin/Supply
        (c) Mechanics/Vehicle Operators & Combat Arms
        (d) Communications & Cooks

4. What is the total of Medics, Communications personnel, and Cooks?

        (f) 19%   (h) 77%
        (g) 23%   (j) 16%

5. What was the second largest MOS group at Ft. Ord in 1981?

        (a) Mechanics/Vehicle Operators   (c) Combat Arms
        (b) Cooks/Admin/Supply   (d) Communications

Use Pie Graph #2 to answer Questions 6-10.

PIE GRAPH #2

Techniques
16%

Customs
& Laws
of War
6.5%

Fitness 1.5%

M16A1 Rifle
6.5%

Give First Aid
20%

M72A2 LAW 4%

SHOOT

.45 Pistol 2.5%

.38 Pistol 2.5%

M203 Grenade
Launcher 2.5%

M60 Machinegun 2.5%

Grenades 2.5%

Mines 1.5%

SURVIVE

Protect Against
NBC Attack
20%

COMMUNICATE 1.5%

NAVIGATE
5%

SEE
5%
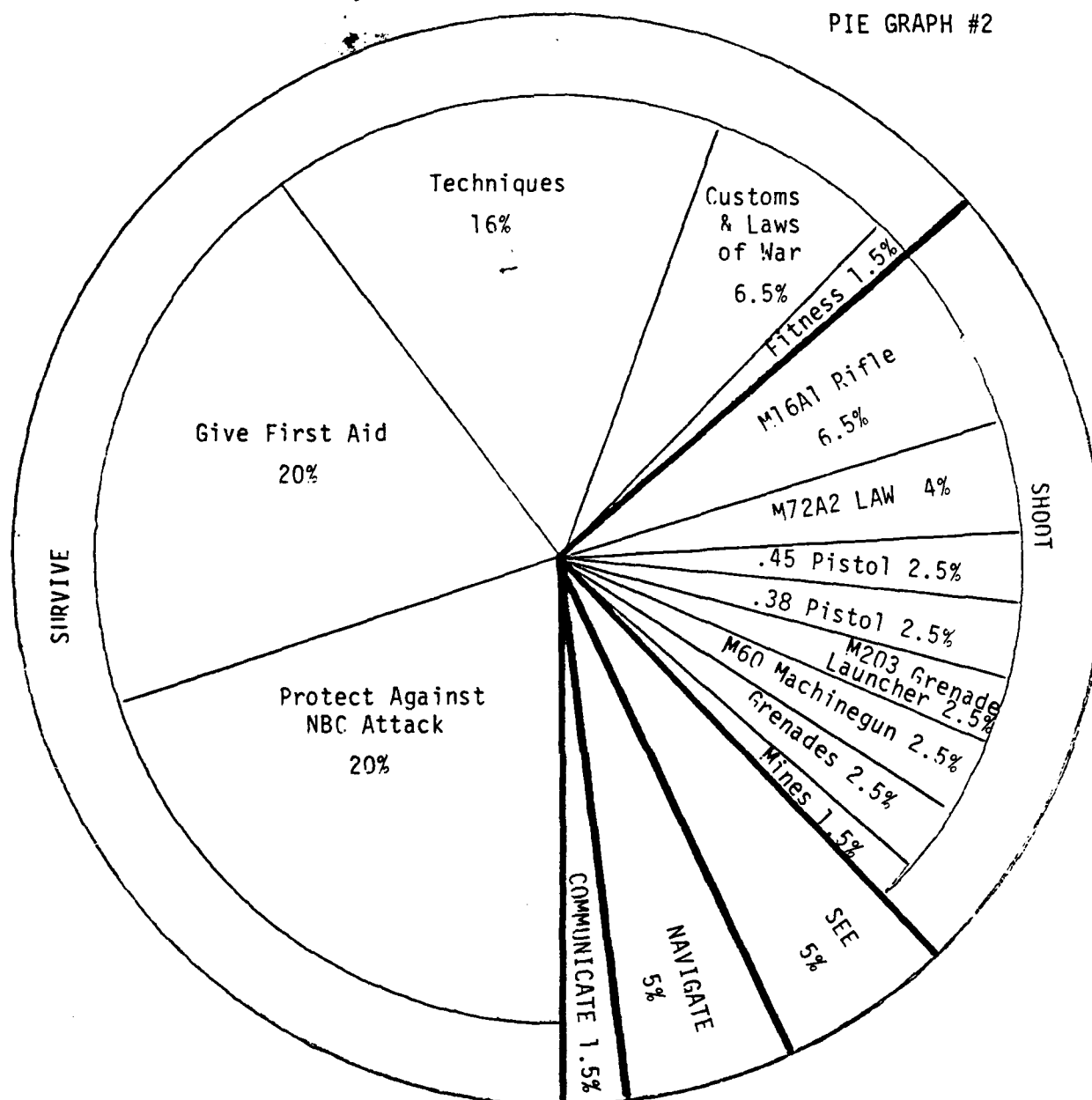
TASK AREAS IN SOLDIER'S MANUAL OF COMMON TASKS,
SKILL LEVEL 1

6. What percent of Soldier's Manual tasks are survival tasks?

      (f) 20%   (h) 64%
      (g) 56%   (j) 6.5%

7. What percent of Soldier's Manual tasks are tasks on pistols?

      (a) 5%   (c) 18%
      (b) 2.5%   (d) 24.5%

8. The tasks are divided into five <u>major</u> sections and several <u>subsections.</u>
    What is the smallest <u>major</u> section of tasks?

      (f) See   (h) Navigate
      (g) Communicate   (j) Shoot

9. Into how many <u>subsections</u> is the section called "Shoot" divided?

      (a) 1   (c) 3
      (b) 5   (d) 8

10. What percent of Soldier's Manual tasks are <u>not</u> "Shoot" tasks?

      (f) 75.5%   (h) 79.5%
      (g) 64%   (j) 20.5%

ANSWER SHEET
Locators and Visuals
Activity Sheet 6A
Pie Graphs

Name _____

	a	b	c	d
1.	0	0	0	0

	f	g	h	j
2.	0	0	0	0

	a	b	c	d
3.	0	0	0	0

	f	g	h	j
4.	0	0	0	0

	a	b	c	d
5.	0	0	0	0

	f	g	h	j
6.	0	0	0	0

	a	b	c	d
7.	0	0	0	0

	f	g	h	j
8.	0	0	0	0

	a	b	c	d
9.	0	0	0	0

	f	g	h	j
10.	0	0	0	0

Meters and dials are a lot like graphs. They tell you how something changes over time or under different conditions. But graphs show what has happened or what to expect. Meters and dials tell you what is happening right now. You use meters and dials to tell you many things, such as how much electrical current is going through a wire or how fast your car is going.

Here is one example of a dial. It shows you how many gallons of water go through a pump in one minute.

WATER
GALLONS PER MINUTE
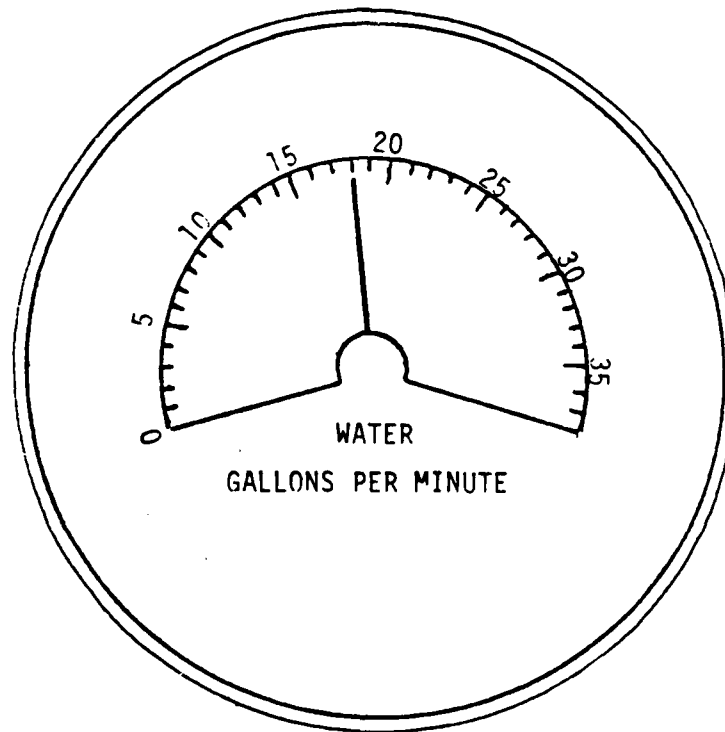
You can see that the pointer on the dial points to the third mark up from the mark labeled "15." Count up from 15 three marks and you get 18. The dial shows there are 18 gallons of water going through the pump every minute.

Every meter or dial has a scale, which shows what is being measured, and an indicator, which shows how much. The indicator is usually a pointer, but it can be a colored bar. In thermometers, for instance, you see a column of mercury which looks like a colored bar.

Instructions: For each question below, look at the meter or dial, then answer the question. Mark the correct answer on your answer sheet.

Name _____

Example: What percent of charge is left in this battery?
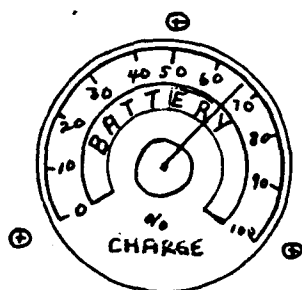
(a) 67%   (c) 33%   a   b   c   d
(b) 38%   (d) 50%   ●   0   0   0

Use the dial shown below to answer Questions 1-3.

AIR PRESSURE
POUNDS PER SQUARE INCH
(PSI)
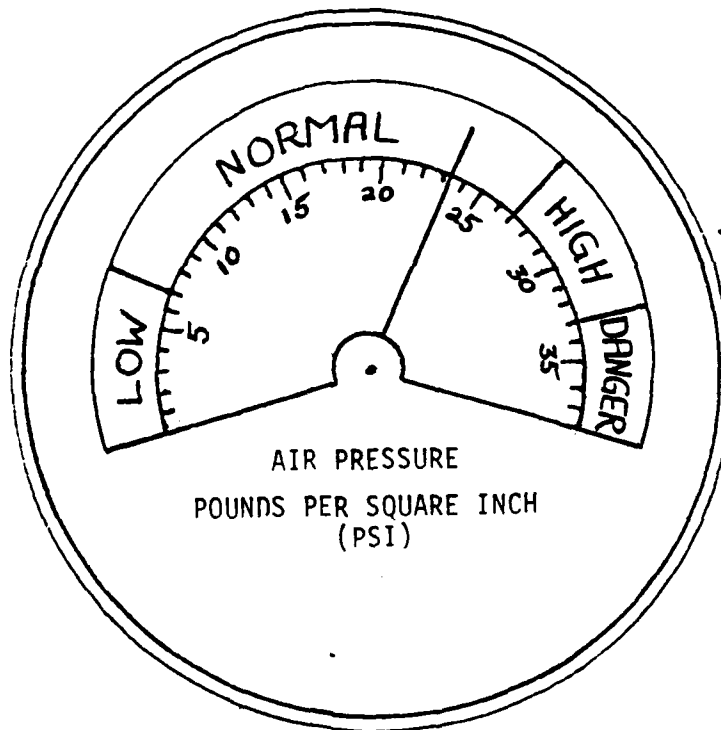
1. About how many pounds of air pressure per square inch does the dial show?

    (a) 20 PSI   (c) 17 PSI
    (b) 25 PSI   (d) 23 PSI

2. At what air pressure does the Danger zone begin?

    (f)   7 PSI   (h) 23 PSI
    (g) 33 PSI   (j) 27 PSI

3. If the pointer showed 5 PSI, what zone would it be in?

        (a) Low   (c) High
        (b) Normal   (d) Danger

Use the thermometer to answer Questions 4-6.
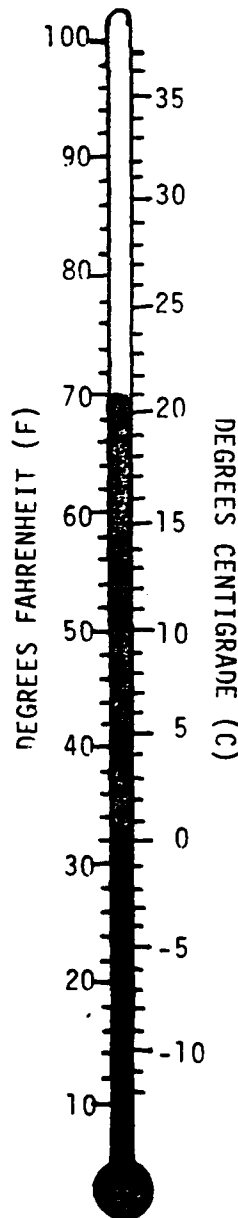
4. What is the temperature in Fahrenheit?

        (f) 21°   (h) 70°
        (g) 22°   (j) 68°

5. Which temperature scale shows <u>negative</u> numbers (numbers less than 0)?

        (a) Fahrenheit   (c) Both
        (b) Centigrade   (d) Neither

6. 10° C equals how many degrees F?

        (f) 10°F   (h) 12° F
        (g) 50°C   (j) 50°F

Use the meter below to answer Questions 7-9.
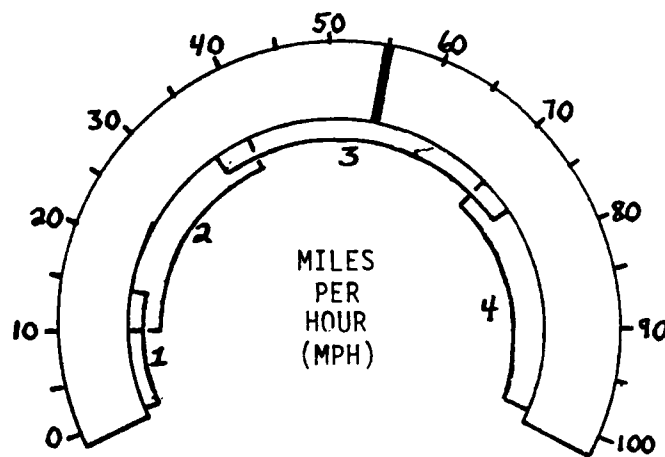
7. How fast is the car going?

        (a)   55 *mph*   (c)   50 mph
        (b)   60 mph   (d)   3 mph

8. This speedometer shows which gear you should use at different speeds.
    The gear ranges overlap. At the speed this car is going, what gear should
    it be in?

        (f)   1st   (h)   3rd
        (g)   2nd   (j)   4th

9. At what speed should you shift from 2nd to 3rd gear?

        (a)   10 to 15 mph   (c)   70 to 75 mph
        (b)   35 to 40 mph   (d)   55 mph

Name _____

1.
a	b	c	d
0	0	0	0

2.
f	g	h	j
0	0	0	0

3.
a	b	c	d
0	0	0	0

4.
f	g	h	j
0	0	0	0

5.
a	b	c	d
0	0	0	0

6.
f	g	h	j
0	0	0	0

7.
a	b	c	d
0	0	0	0

8.
f	g	h	j
0	0	0	0

9.
a	b	c	d
0	0	0	0

CHECK SHEET
Locators and Visuals
Activity Sheet 1A
Table of Contents

1.
a b c d
0 0 ● 0

2.
f g h j
0 0 ● 0

3.
a b c d
● 0 0 0

4.
f g h j
0 ● 0 0

5.
a b c d
0 ● 0 0

6.
f g h j
0 0 0 ●

7.
a b c d
0 0 ● 0

8.
f g h j
0 0 0 ●

9.
a b c d
0 0 ● 0

10.
f g h j
0 ● 0 0

11.
a b c d
0 0 0 ●

12.
f g h j
● 0 0 0

CHECK SHEET
Locators and Visuals
Activity Sheet 1A

CHECK SHEET
Locators and Visuals
Activity Sheet 2A
Index

Name _____

1. a   b   c   d   7. a   b   c   d
    0   0   ●   0   0   0   0   ●

2. f   g   h   j   8. f   g   h   j
    ●   0   0   0   0   0   ●   0

3. a   b   c   d   9. a   b   c   d
    0   0   0   ●   0   0   0   ●

4. f   g   h   j   10. f   g   h   j
    0   ●   0   0   ●   0   0   0

5. a   b   c   d   11. a   b   c   d
    0   ●   0   0   ●   0   0   0

6. f   g   h   j   12. f   g   h   j
    0   0   ●   0   0   0   ●   0

Locators and Visuals
Activity Sheet 3A
Tables

	a	b	c	d
1.	0	0	●	0

	f	g	h	j
2.	0	●	0	0

	a	b	c	d
3.	●	0	0	0

	f	g	h	j
4.	0	0	0	●

	a	b	c	d
5.	0	●	0	0

	f	g	h	j
6.	0	0	0	●

	a	b	c	d
7.	0	0	●	0

	f	g	h	j
8.	●	0	0	0

	a	b	c	d
9.	0	0	●	0

	f	g	h	j
10.	●	0	0	0

	a	b	c	d
11.	0	●	0	0

	f	g	h	j
12.	0	0	0	●

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Locators and Visuals
Activity Sheet 4A
Bar Graphs

1.
a	b	c	d
0	0	●	0

2.
f	g	h	j
0	●	0	0

3.
a	b	c	d
0	●	0	0

4.
f	g	h	j
●	0	0	0

5.
a	b	c	d
0	0	●	0

6.
f	g	h	j
0	0	0	●

7.
a	b	c	d
●	0	0	0

8.
f	g	h	j
0	●	0	0

9.
a	b	c	d
●	0	0	0

10.
f	g	h	j
0	0	●	0

11.
a	b	c	d
0	0	0	●

12.
f	g	h	j
0	0	●	0

Locators and Visuals
Activity Sheet 5A
Line Graphs

1.
a	b	c	d
0	0	●	0

2.
f	g	h	j
0	0	0	●

3.
a	b	c	d
●	0	0	0

4.
f	g	h	j
0	●	0	0

5.
a	b	c	d
●	0	0	0

6.
f	g	h	j
0	●	0	0

7.
a	b	c	d
0	0	●	0

8.
f	g	h	j
0	0	●	0

9.
a	b	c	d
0	0	0	●

10.
f	g	h	j
●	0	0	0

11.
a	b	c	d
0	0	●	0

12.
f	g	h	j
0	●	0	0

CHECK SHEET
Locators and Visuals
Activity Sheet 5A

Locators and Visuals
Activity Sheet 6A
Pie Graphs

		a	b	c	d
1.		0	0	0	●

		f	g	h	j
2.		0	0	●	0

		a	b	c	d
3.		0	●	0	0

		f	g	h	j
4.		0	0	0	●

		a	b	c	d
5.		●	0	0	0

		f	g	h	j
6.		0	0	●	0

		a	b	c	d
7.		●	0	0	0

		f	g	h	j
8.		0	●	0	0

		a	b	c	d
9.		0	0	0	●

		f	g	h	j
10.		●	0	0	0

1.
	a	b	c	d
	0	0	0	●

2.
	f	g	h	j
	0	●	0	0

3.
	a	b	c	d
	●	0	0	0

4.
	f	g	h	j
	0	0	●	0

5.
	a	b	c	d
	0	●	0	0

6.
	f	g	h	j
	0	0	0	●

7.
	a	b	c	d
	●	0	0	0

8.
	f	g	h	j
	0	0	●	0

9.
	a	b	c	d
	0	●	0	0

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LEARNING STRATEGIES: READING COMPREHENSION MODULE

ACKNOWLEDGEMENT

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TABLE OF CONTENTS

READING COMPREHENSION

The objectives for this lesson on Reading Comprehension are:

1. You are able to use the Questioning method to read;
2. You are able to use the Network method to read;
3. You are able to use the Problem Solving method to read;
4. You are able to select which of the three reading methods is best for you and to use this method when you read to learn.

We've all read something and had trouble following the author's chain of thought. Sometimes we come across a sentence or paragraph which just doesn't make sense. We usually know when we don't understand what the author is saying. But we don't always know what to do about it. Other times we begin to read a book and don't even make it past the first sentence. Sometimes the words are hard. Sometimes the whole sentence is hard. Many times the book or manual has a lot of new ideas or words. What we need is a way to help us. That's what this unit will offer you: ways to deal with reading tasks.

We have found that there are three basic ways that seem to help people read better: (a) Questioning, (b) Networking, and (c) Problem Solving. In this lesson we will talk about each of these ways. You will have a chance to practice using each of them.

These three ways of reading help people understand what they read better. They are based on our work with other good readers. We are not saying that there are only three ways to read. But we do know that some of the other ways people read does them more harm than good.

Some people take "notes" as they read. They copy the book word for word. Some people copy their notes several times. Some just ignore words or sentences they don't understand. Can you think of some things that you do when you are reading that may not be helping you?

At the end of this lesson, you may find that one method works better for you than any of the others. Or you may think that two of them work just as well for you. On the other hand, you may find that all three help you. Whatever you

decide, be sure to practice your chosen method(s) in all of your reading. This way you can be your own learning methods expert.

The first reading method we will talk about is Questioning...the use of questions to find the main idea of a paragraph.

Questioning

The questioning method has four steps:

Step 1: <u>State the purpose of your reading and set up your time schedule</u>. You may be reading to take an SQT test or to learn how to perform a soldier manual task. The amount of time you spend will often depend on why you are reading, and the kind of books you use.

Step 2: <u>Read to find the main idea</u>. Read the first paragraph of your manual or book. Decide if the main idea is clear or not. The main idea is often found in the first sentence of the paragraph. The main idea is also often found in the last sentence of the paragraph. The other sentences in the paragraph often give you more information about the main idea. If the point the author is making is clear to you, write it down. If it is not, write down the part you think is the key point.

Step 3. <u>Make up a question</u>. Your question should ask about the main point of the paragraph. Look at the example below. This is a paragraph about the idea "organization":

An organization is a group of people who do things together because they have the same interests or problems. Organizations have rules and they often have a leader. The United Nations and the school safety patrol are examples of organization.

A good question would be <u>"What is an organization?"</u>. The answer to that question would state the main idea of the paragraph.

If possible, <u>you should make up a question which asks for an example of the main idea of the paragraph</u>. The example should be different from any which were given in the paragraph. In the above example, a good question would be: <u>What is an example of an organization which is different from any given in the passage above?</u> In short, your questions should do three things: The question should (a) be based on the main idea; (b) call for use of the main ideas in making up new examples; and (c) should be written in your own words.

Repeat Steps 2 and 3 on each paragraph you read. That is, read, write down the main point(s) and make up a question about the paragraph you read.

Step 4:   <u>Learn the answer to your questions</u>. After you finish reading, try to remember the answer to your questions. If you can't remember them, look them up in the text. But don't waste time writing them down.

Now you will get the chance to practice the Questioning method on a few paragraphs. As you go through the material, you may want to go back to earlier questions to rewrite them. You should do that when you want to. After reading each paragraph, write your question below that paragraph. Then you will see an example of what we picked as the main idea of that paragraph. You will also see a question we wrote about that main point.

<u>Remember</u>: There are lots of ways to ask a good question. Your own questions, however, will probably be the best aid for you to understand and remember what you read. If you are not sure about how good your question is, use the checklist shown on the following page:

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1. Does the question come from the main point of the paragraph?
    If not, write a question that does.

2. Does the question ask for a new example of the main idea?
    If not, can a new question be made that does?

3. Does the question repeat words or groups of words from the text?
    If so, could you change these into your own words which mean
    the same thing?

Below is an example of the use of the Questioning technique. Read the paragraph and then read the question we wrote and the ideas we added. If you understand this example, go on to the next page and practice the Questioning method. If you don't understand this example, return to page 2 and review the 4 steps of the Questioning method or ask your instructor for help.

Example:

Soldiers may have to fight against an enemy that uses NBC agents. <u>A soldier has to live and fight while wearing clothes that protect him from NBC agents.</u> Even simple tasks have to be done in new ways. Some simple tasks are very vital. Some examples are drinking water, using the latrine and sleeping.

        Question: What must a soldier do when NBC agents are being used?

             Give an example of tasks that must be done in new ways.

COMMENTS: The main idea of the paragraph is that <u>a soldier has to live and fight while wearing clothes that protect him from NBC agents</u>. The question was written in such a way that its answer will be the main idea of the paragraph.

Note that the words of the question are not the same as those in the text.

An example of what a soldier must do that is different from that used in the text would be how to eat when in an NBC area.

Here is another example of the use of the Questioning technique. Read the paragraph, and then read the question we have written and the comments we have added. If you understand this example, go on to the next page and practice the Questioning method. If you don't understand this example, return to Page 2 and review the 4 steps of the Questioning method or ask your instructor for help.

<u>Your M17A1 mask and your canteen were made so that you can drink while in an NBC area.</u> The mask has a coupling half in a pocket under the voicemitter. The canteen has a cover over a small hole in the cap. The coupling half on the mask fits into the hole in the cap.

        Question: How are you able to drink in an NBC area?

COMMENTS: The main idea of the paragraph is that <u>your M17A1 mask and your canteen were made so that you can drink while in an NBC area</u>. The question

was written in such a way that its answer will be the main idea of the paragraph.

Note that the words of the question are not the same as those in the text.

Asking for a new example is not necessary in this case. There is only one right way to use the mask and canteen to drink.

Use the Questioning Method in reading the paragraph below. Find the main idea, underline it, and write a question at the bottom of the page. Try to answer the question in your own mind. Then compare your question with the one we have written on the next page.

EXAMPLE:

There is only one right way to drink water while masked. The right way to drink is shown, step-by-step, in FM 21-2. Every soldier must know how to drink water as shown in this Soldier's Manual of Common Tasks. You can use the manual to learn and practice the right way. Practice until you can do it without the manual.

Write your question here:

_____

_____

_____

_____

There is only one right way to drink water while masked. <u>The right way to drink is shown, step-by-step, in FM 21-2</u>. Every soldier must know how to drink water as shown in this Soldier's Manual of Common Tasks. You can use the manual to learn and practice the right way. Practice until you can do it without the manual.

Question: Where can I find out how to drink in an NBC area?

COMMENT: The answer to this question is: "The right way to drink while masked is shown in FM 21-2, the Soldier's Manual of Common Tasks." This is the main idea of the paragraph.

The next 2 pages contain a short passage so that you can practice the Questioning Method on more than one paragraph. After you read each paragraph, underline the main idea and write your question.

Remember to write questions that fulfill the 3 objectives outlined in the third step of the Questioning Method. That is, your questions should: a) be based on important ideas; b) they should call for a new example of the idea, if possible; c) and they should not repeat words from the passage.

You can also check your questions with those we have written (Page 11).

The results of using questions as a
study aid show that people who use questions
in reading are able to remember better than
people who don't use questions. Research
reveals that when people are asked or ask
questions, even after a long passage, such
as at the end of a chapter in a textbook,
they can be very helpful to learning.

1. Question:

It seems that the questions act
primarily on the person's ability to get
the information out of his or her head.
Asking questions while reading helps
people "retrieve" the information they
need such as when they are taking a test.

2. Question:

The Questioning method of reading
was also found to be useful in a formal
classroom. When the students were given
a reading assignment which took them 15-20
minutes to study, they were also given
several study questions. After reading
the assignment, they reported to the
teacher and were given a test over the
material they had just read. If they did
not answer at least 75% of the questions
correctly, they were told to read the
material again. After reading the material,
they retook the test. The performance of
students who used the study questions was
compared with a group of students who read
the material on their own without using
questions. In each of three semesters,
those students who used the study questions
to help them learn the material did much

3. Question:

better on a final test that did a group
of students who read the material on their
own.

Now, before turning the page to look at the questions we wrote, be sure you:

1. Underline the main idea in each paragraph.
2. Write a good question beside each paragraph.

Our Questions on Questioning As A Study Aid

1. Question: How do students who use questioning as a study aid do on
              tests compared to students who don't use this method?

2. Question: What do study questions help students to do?

3. Question: Which group of students did better of the final test?

   This is the end of the Reading Comprehension section on Questioning. This
technique may be your favorite. On the other hand, read the next two sections
on Networking and Problem Solving to make sure that you know all of the choices
you have to improve your reading ability.

Networking

Networking is a way to organize information. It is based on research which shows that very smart people think about how different ideas relate to each other. By thinking about how ideas connect, smart people learn new ideas quickly and easily. So, Networking is a way to organize connections or relationships. It is like making a map of the ideas you want to learn. Just as a road map helps a driver get from one place to another, Networks can help you get from one idea to another. They help you understand what you read.

You might think of Networking as making highways between major ideas. Let's say I am in Salinas, and I want to get to San Francisco. I know that the highway (relationship or link) connecting them is Highway 101. Further, I know that there are other roads connecting those 2 cities. There's a state highway, a farm-to-market road, and so forth.

My task appears much easier, doesn't it? I simply choose the road I want to take, find that road, and presto, I'm in San Francisco. So the first important part of Networking is making <u>links</u> or relationships between ideas.

Another important part of Networking is its use of <u>mental pictures</u>. This is another idea from recent research. It shows that when people try to "picture" what they are reading about or listening to, it helps them remember it <u>much</u> better than when they don't. The funny thing is that it will work even if you can't really see a mental picture. The only thing that seems important is the act of trying to "picture" it. It doesn't matter whether you are successful or not.

Pictures are also good because you can make them very interesting, exciting, pleasant, funny, and so on. So, put pictures in your memory or in your "notes." Then when you come back to review what you have been reading, it will be much more fun. In a way, making interesting pictures is like adding spices to food to make them taste better.

So thinking and drawing interesting pictures of what you read is something we would like you to start doing. Please don't be afraid if you don't draw very well. The pictures you draw are just notes to yourself.

The third part of Networking is "paraphrasing" (para-fraze-ing). By this we simply mean to put what the author is saying in your own words. For instance, an author might say, "The economy of the United States is in grave trouble." We can then say "The U.S. economy is a mess."

Also, you might want to spice up your paraphrases. Remember that silly or funny pictures are easy to remember. In the same way, silly or funny paraphrases make things easy to remember. For example, remember the author's statement in the last paragraph. We can spice up our paraphrase by saying "Uncle Sam writes rubber checks!"

OK, now you know that Networking is a way to organize information. It creates relationships or links, and mental pictures. Figure 1 gives a picture of why and how Networking is used. The author in Figure 1 has stored networks or maps in his head. And he is trying to tell a reader about these networks. In order to do that, the maps in the author's head have to be put into words.

When you change mental or mind maps into words, you often lose a lot of the picture. Words just do not have as much information as pictures do. The change is like looking at a large city or farm from an airplane and then looking at the same place when you are on the ground. When you are on the ground, you can see only a small part of what you could see from the plane. When you read a book or listen to someone talk, you are forced to look at information like you would look at a place from the ground. It does not give enough information. It will help to try to see the big picture by making your own mind map.

So, after the author changes his mind map into words, your job is to find out what the author is trying to say. To do this, you change the words into your own mind map. You connect all the ideas and add your own feelings and pictures. This helps you remember what the author said.

author   Reader
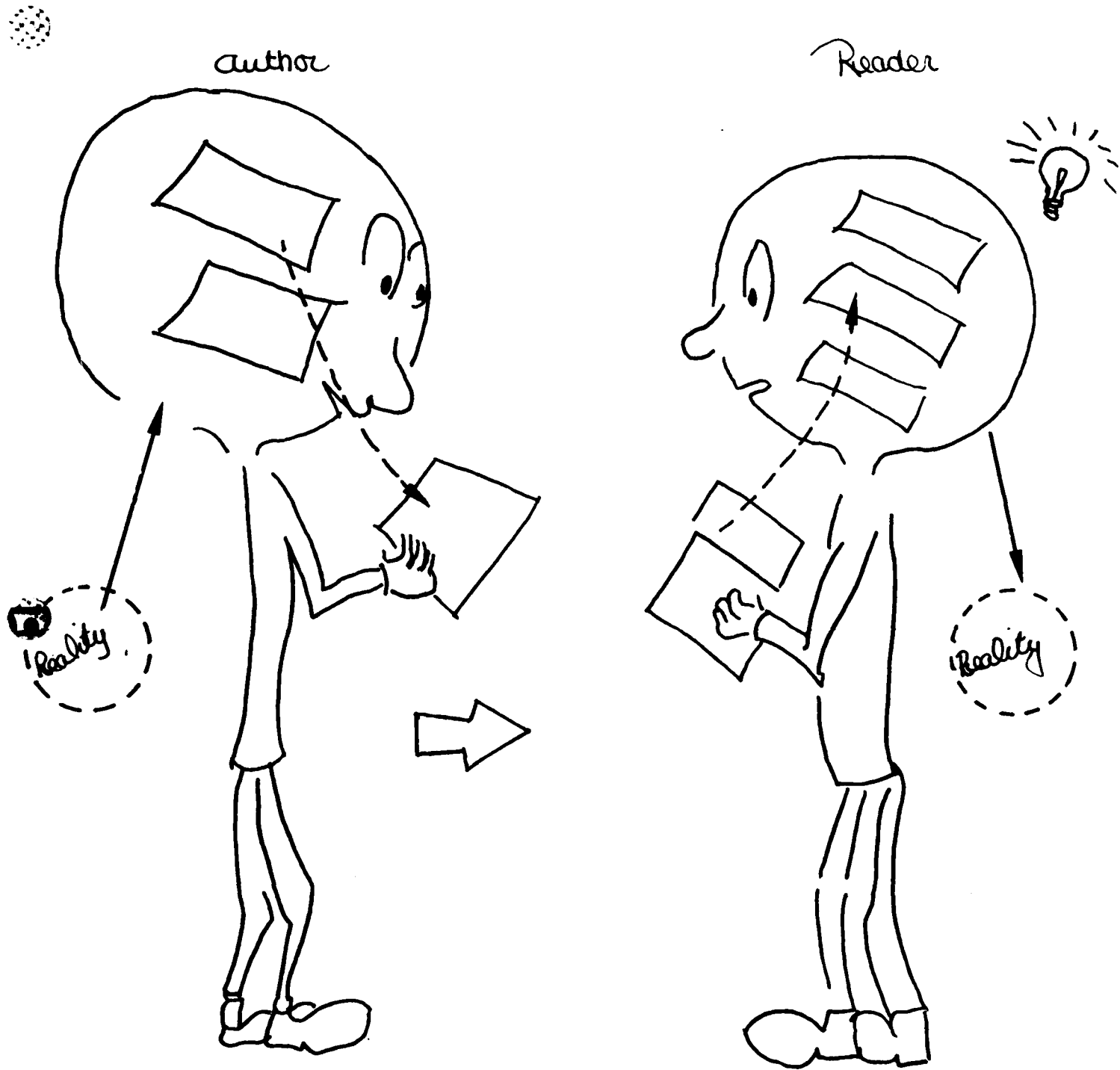
FIGURE 1

Now, let's talk about the <u>kinds of</u> links that can connect ideas. You probably already know all of the links we are going to talk about. But you may not know the names of these links. To help you learn these names, let's look at the idea "Infantry Division."

What are some things that are known about an Infantry Division. First, the Infantry Division is one of several kinds of divisions that make up the Army. In Networking, we show the <u>relationship</u> between Infantry Division and Army by a solid line. And we add a "t" for <u>type of</u> (See Figure 2). Some other divisions are the Armor, the Mechanized Infantry and the Airmobile Divisions. These divisions also have <u>type of</u> links with the Army (See Figure 2).

One way of describing the Infantry Division is that: it is a group of units whose job is to contact, capture and destroy the enemy. The Infantry does this by: a) conducting offensive operations, b) conducting defensive operations, and c) patrolling. These activities <u>characterize</u> the Infantry Division. Thus, in Networking, we use a solid line labeled "c" to indicate this <u>characterize</u> relationship (link). (See Figure 2).

The number of Division activities is so large that in many ways the Infantry Division (ID) is similar to a small city. Both the ID and a small city have units that deal with personnel, health, housing, education, security, communications, transportation, and even recreation. Thus, the ID can be considered similar to a small city and we can use an "s" link to show this <u>similar</u> relationship (link.) (See Figure 2).

One part of the ID is the NCO Academy. The NCOA is <u>part of</u> (p) the ID training program so it is linked with the ID by a "p" link. (See Figure 2). Soldiers who go through BNCOC at the NCOA have a better chance for promotion. We can, then, connect the BNCOC to this idea of promotions by a <u>leads to</u> link (a dotted line with an "l" in Figure 2).

Another feature of the ID is its many educational programs. The ID offers some type of educational program to all its people. Thus, we can say that education is another feature which characterizes the ID. We show this by
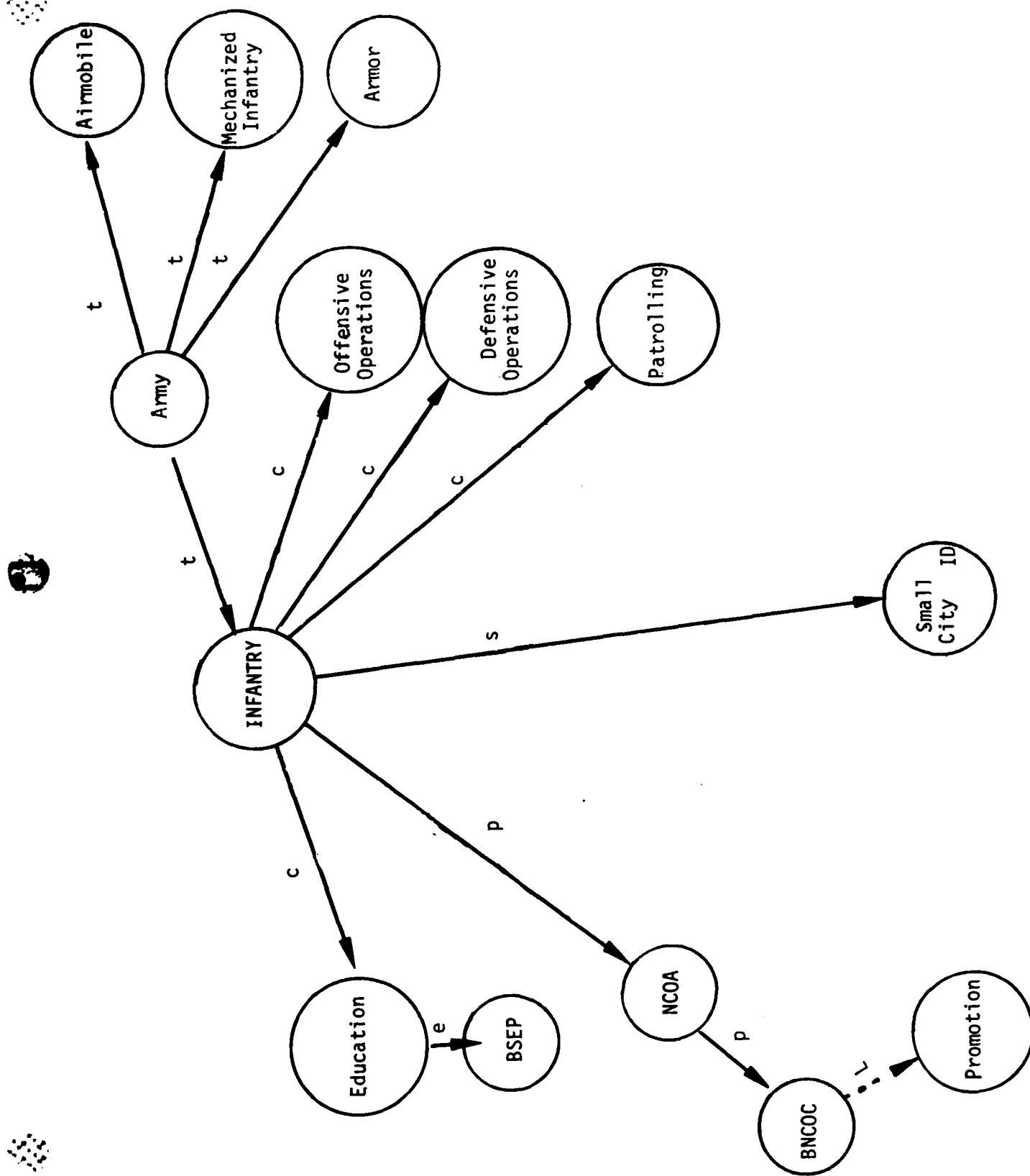
FIGURE 2

connecting ID and education with a solid line. Then we add the letter "c" (See Figure 2). There is much evidence that this is true. The BSEP Program is a big part of the education program in the Army. Hundreds of soldiers finish BSEP each year. This chance to learn leads to many other important jobs and schools that help soldiers get ahead. Thus, the chance to go to BSEP shows that the ID believes that education is important. We can, then, add an evidence link ("e") to show the relationship between BSEP and the ID education program (see Figure 2).

This discussion of the concept "Infantry Division" has pointed out six basic relationships or links. These links are present in any body of information. The links are:

1. part of (p)
2. type of (t)
3. leads to (l)
4. similar to (s)
5. characteristic (c)
6. evidence (e)

They form the building blocks of the Networking method. Your next question might be, "How are these building blocks used?" An example will show this best. Look at the two study techniques on the following page. On the left side of the page is an outline for a lesson on study habits. On the right side of the page is a Network for the same lesson.

STUDY HABITS

A. Introduction

B. Steps for Studying

    1. Set the mood

        a. relaxation

        b. self-talk

        c. mental pictures

    2. Understand

        a. get the Big Picture

        b. mark important, interesting
            or problem parts

    3. Make personal picture of new
        information

        a. take notes, adding and
            organizing important
            and interesting material

        b. solve remaining problems by
            looking at small part of
            material

C. Summary
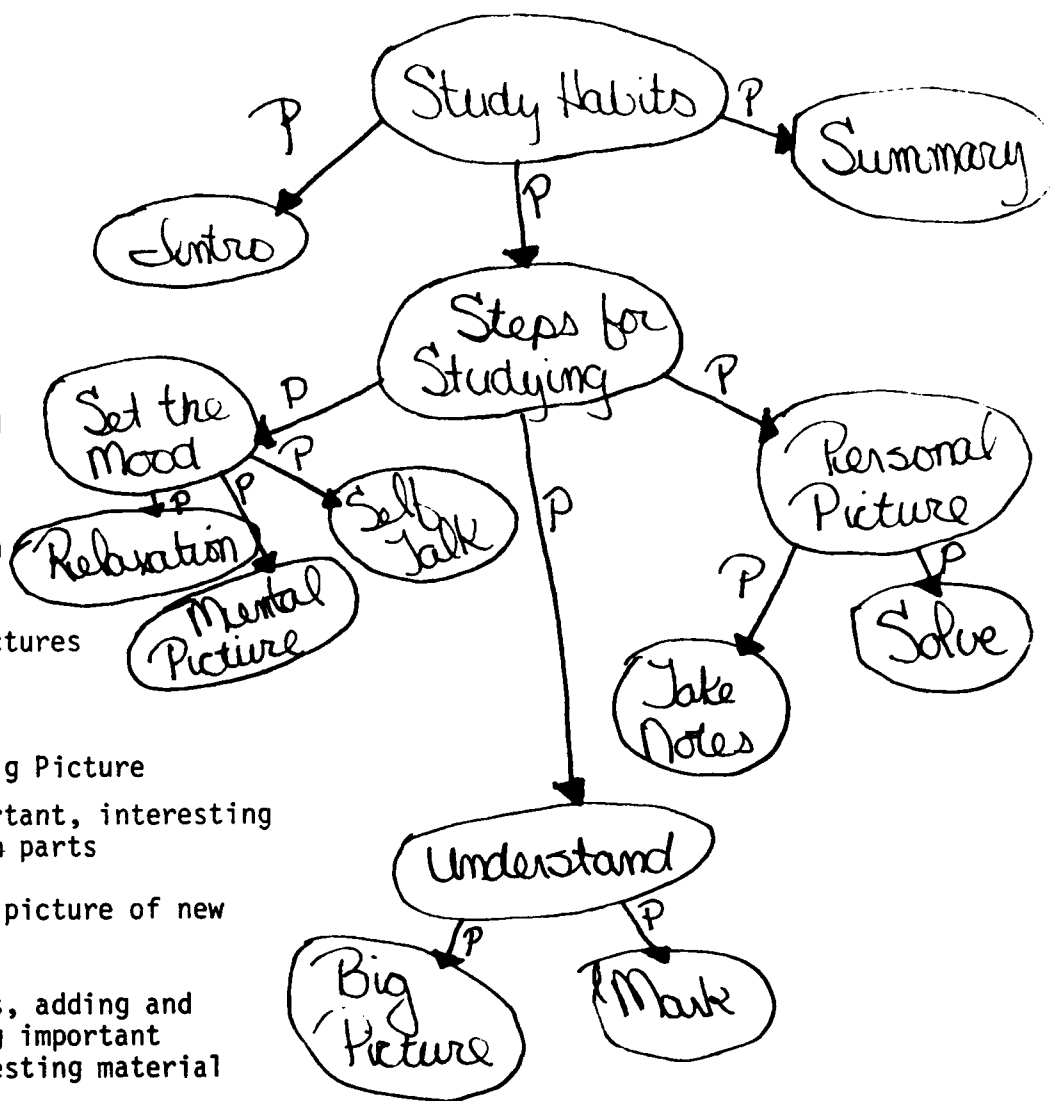
Thus, the building blocks of Networking are used to show the relation-
ships (links) between ideas so that you can really understand what an author
or speaker is trying to tell you. Now the question is "What are the specific
steps that a reader or listener should take to make his own Network?"

In using Networking, you should take these steps:

1. <u>Read and mark</u> the section of material you are learning. You should
   mark or write down the important words and ideas. Then note the links
   (relationships) that exist between the ideas.

2. <u>Network</u> the information to organize the important ideas. In making your
   Networks, you should add personal comments, questions and pictures. This
   makes your Network your own. This will help you remember the material.

3. <u>Read</u> through your Network and <u>memorize</u> the <u>important information</u>. It
   will help if you try to picture the shape of the Network in your mind.
   (This third step will often be done when you are reviewing for a test.)

AN EXAMPLE OF HOW THE NETWORKING METHOD IS USED:

Here is a short passage on "learning." We have written a Network for it.
It will provide a good example of how to organize material. If you have any
questions, please ask your instructor for help.

Today many people in our country think
we need some kind of change in our schools.
One big problem in our school system seems
to be that very few people know how to
teach students how to learn. That is,
it is often thought that students will
learn just because they are asked or
told.

—Important point
seems to be that students
are not taught how to
learn even though they
are told to do it for
at least 12 years of
their life.

Even in first and second grade classes, you can find teachers telling their students to learn or read a lesson but giving them no hints on how to do this. The belief that the ability to learn is present at birth in every child is not true. It may be true that many children and adults do become good learners and students because of their hard work, but few schools do much to help students share these ways to learn.

Some new research shows that to learn to be a good student, people use active methods to put new information into their memory system. They do not act as simple containers into which information is poured. That is, research shows that people learn new information when they change it to fit their personal memory system.

Learning is a skill which has to be learned and our schools often don't teach it

People learn by putting new material in their own words

Not This → 😊 New Info

This ↓ 😊

New Info

My Memory System

Learning

c → Schools often don't teach it

c ↓ Skill which has to be learned

P ↓ Teachers assume students know how to learn

c ↓ People learn by putting new information into their own words

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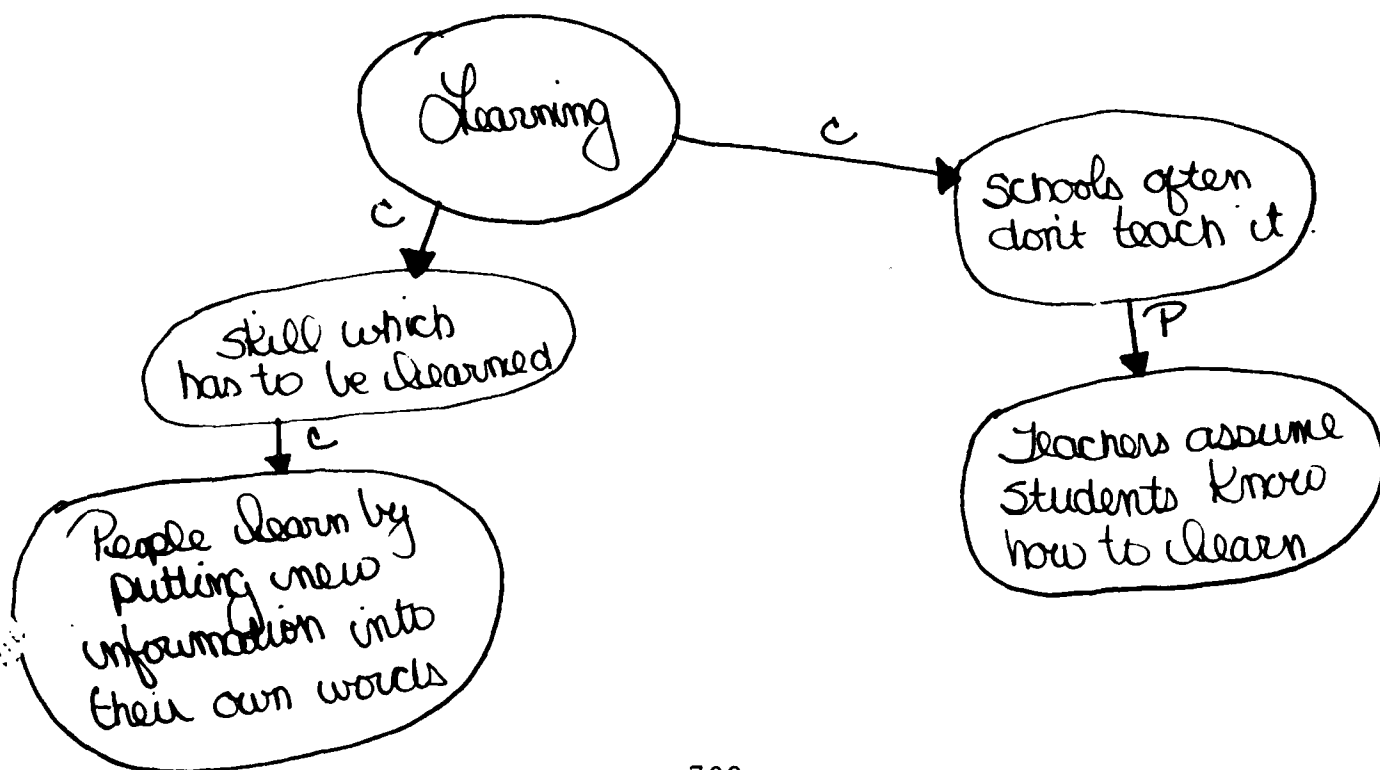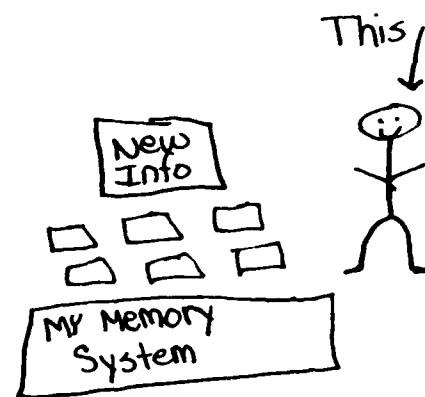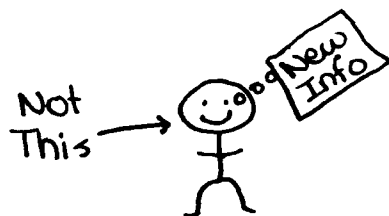
And that is all there is to Networking. There are, though, some
key points about this method which you should keep in mind. Also, the
next page is a Network of the Networking Method. See if you can under-
stand it.

Some Important Points About Networking

1. Make as many links between important ideas as you can.

    The more links, the easier it is to "bring back" what you read. This
    is like traveling to a city with a lot of roads going into it. It's
    a lot easier to get into such a city than into one with a few access
    roads.

2. Networking can be used to organize material for papers and speeches.

    Make a map and then use it as an outline.

3. Learning to think in terms of links or relationships will help you
    remember even if you don't use the whole Networking method.

    It takes a little longer than one reading would take. But after the
    method is learned it probably takes even less time than studying by
    underlining or by taking notes. It is a much better way to read.

4. Networking is not magic!

    It will help you, but you have to put in the time and energy to learn
    it. It is a new skill and at first it will not feel very easy.
    (Remember how you felt when you first learned to drive a car!) After
    awhile, however, it will smooth out and you will become a master of
    the method.

5. Finally, one way to help things keep moving is to enjoy small gains;
    small victories over what you read, small ideas, etc. Enjoy it when
    when you remember something you didn't think you knew. Get excited
    about finding a link between two ideas that you had not thought of
    before! Feeling good about these small things helps to make learning
    fun!

NETWORKING

definition — Changing of text or knowledge into a link diagram

Able to make good network goes with good understanding → Networking could serve as a way to see how well a reader knows a lesson

The more readable the text the easier it should be to network → Networking could serve as a way to judge readability.

Gives another way of writing text → Showing networks as additions to text material will increase understanding and remembering

Added extra-text things can be added to network → Better able to link new info that has already been learned

Uses a link system that can be used as an internal language → Can be used to improve ability to get at info that has been learned

Can be used to improve under-standing

Points out areas of specific difficulty → Can be used to "trouble-shoot"

Makes reader increase depth of understanding → Better retention

More mental effort → Better concentra-tion

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The next section on Problem Solving will complete your list of ways to deal with reading tasks.

PROBLEM SOLVING

Problem Solving involves 3 steps:
1. Figure out the problem
2. Gather information to solve the problem
3. Check and change the solution

Problem Solving also involves using worksheets to help you go through each of these steps. We will tell you more about those worksheets in a minute. First, let's talk about the three steps of Problem Solving.

The Problem Solving method is not going to make you understand everything you read. However, if you find something you don't understand and work on it, you will know a lot more about the topic. This works better than if you just read over the material two or three times. Why should we plan to learn anything by rerunning the same stuff through our head in the very same way? We learn by moving the stuff away from the author's words and into our own words and experience.

You can improve your understanding by following the steps we will show you. You may not understand all you read completely. You will though, learn how to remember key parts. Using this method will help you do better on any test you may have to take.

So, let's begin.

Step 1: FIGURE OUT THE PROBLEM. In understanding new information, there are four common problems: (a) word problems; (b) senter.. problems; (c) paragraph problems; and (d) passage problems. But what, do each of these problem areas mean?

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Common Problems in Understanding

1. **Word** -   not understanding what a word means. It may be a
technical word, unfamiliar word, or a common word
used in an uncommon way.

2. **Sentence** -   not understanding the meaning of an individual
   (group of   sentence. It may be that the order of the words
   words)   (sentence structure) makes it hard to read. Or
you may not know the words themselves (vocabulary).
It may be hard to figure out the subject or the
topic of a sentence. <u>Note</u>: If you understand a
sentence (its words, structure and topic) but don't
understand how it fits with the paragraph, it's a
<u>paragraph</u> problem.

3. **Paragraph** -   not understanding what a paragraph means. This may
   (group of   be due to (a) not being able to understand how the
   sentences)   sentences fit in with the topic of the paragraph;
(b) not being able to figure out the topic of the
paragraph; (c) not being able to fit the topic of
the paragraph in with the <u>passage as a whole</u>.
<u>Note</u>: Do not work at the paragraph level until
you have understood <u>each</u> sentence in the paragraph.
You should work at the word or sentence level before
moving to the paragraph level. Come to the paragraph
level only after you understand each sentence in the
paragraph.

4. **Passage** -   not understanding the main idea(s) of a passage. It
   (group of   may be due to: (a) not knowing the topic of the passage;
   paragraphs)   or (b) not understanding how each paragraph fits in with
the topic of the passage.

Okay, now if you are having a problem with reading, you can use this list of problem areas. The list will help you decide what kind of a problem you have. For example, don't begin at the paragraph level unless you understand each of the individual sentences in the paragraph. Don't choose a sentence unless you understand each of the words of the sentence.

Step 2: GATHER INFORMATION: You know what problem to work on. Now you are ready to get information to help you solve it. We have found three ways to get the information you need.

1. Breakdown - Look at the parts to understand the whole. This means you take apart the word, sentence, paragraph or passage. This helps you find out its meaning.

2. Surround - Look at the whole to understand the part. To do this, you look at what is close to the problem area (surrounding words, sentences, paragraphs, or passages).

       Begin as close to the problem as possible (the closest thing you understand). Then work into the problem. If this information doesn't help, go to the next closest part you understand. Continue this process.

3. Other Source - Look at another source to understand the part or whole. This may be the dictionary, another textbook, the instructor, or a fellow soldier.

To help you get information on your problem, we have made up several worksheets. There is one for each type of problem (word, sentence, paragraph, or passage). First, find the type of problem you have. Then use the worksheet that goes with your problem to get information. These worksheets are at the end of this lesson.

You will find other information on how to solve your problem at the end of each worksheet. You should read these extra hints. They help you to use all the information.

In other words, after you find where the problem is (word, sentence, paragraph, passage), use the worksheet that goes with that problem to get information. Use that information to make your best guess about what the problem area means.

Step 3: <u>CHECK AND CORRECT</u>. After you have made your best guess about the problem, you then test how good your guess really was. One way to judge your guess is to see if it fits with the rest of the material. If everything fits, you will have kind of an "Oh, yeah, this makes sense" feeling. Then your guess is probably right. If you can find something that still doesn't fit in with your guess, you can try again. If you are not sure of your guess, write that down on the worksheet under <u>Step 3: Check and Correct</u>. You can then try to get more information as you read more of the lesson.

It will help you to judge your Problem Solving skills after you make a best guess. Just write down any change you want to make in your Problem Solving method. For example, maybe you spend too much time on a sentence problem when you really needed to start at the "word" sheet.

Next, judge your reading method by how much you have learned. For example, if you change your reading speed, will you be able to learn more? Do you need to keep track of the main idea? Write some suggestions to yourself. Don't be upset if you are not sure of your changes. Your instructor is always ready to help you.

Thus, the three steps in Problem Solving are:

1. Figure out the problem.
2. Gather information (use a worksheet if you need it).
3. Check and correct.

These steps will be easy to understand when you read each of the worksheets. Be sure to read all the information that goes with each one. The worksheets are at the end of this lesson. After you use this method a few times you will find that you don't need worksheets as much. Just be sure to try this method a few times before you decide if it is "for you."

SUMMARY OF PROBLEM SOLVING METHOD

You may not feel that the worksheets meet your needs. Don't feel that you have to use them all the time. They are simply examples of ways to work on problems.

The chart on the next page summarizes the Problem Solving method. It may be your main source of help after you use it a few times.

Now it is time for you to practice with the worksheets that follow. The best way is to use them with something you want to learn about. You can, for example, use them to help you learn a task in a soldier's manual. Or you may try the worksheet by reading a field manual.

SUMMARY OF PROBLEM SOLVING METHOD

<u>PROBLEM</u>

		Word	Sentence	Paragraph	Passage
Always begin here	<u>Breakdown</u>	Prefix - Root - Suffix	Subject-verb; topic and comments	Sentences related to paragraphs; Topic of paragraph	Paragraphs related to passage; Topic of passage
<u>Source of Infor- mation</u>	<u>Surround</u>	Synonym; Examples; Other Words	Other sen- tences in paragraph Main idea of para- graph or paragraphs	Relation- ship between the para- graph and other para- graphs Topic of passage Table of contents, summary	Other parts of text
	<u>Other Source</u>	Glossary Diction- ary	Other texts Other people	Other texts Other people	Other texts Other people
	<u>Best Guess</u>				

Choose a manual now. Then start with the "word problem" worksheet. Read a sentence in the manual and find a problem word. Then do what the worksheet says to do.

Use a pencil, so you can erase and use the worksheet again.

When you think you know how to do word problems, go on to the "sentence" problem worksheet. Use each worksheet to help you read the book or manual. When you have worked with all the worksheets, you can then compare this method with the other ones you have used.

If you want some help, ask one of the BSEP instructors. They will be glad to help you.

WORD PROBLEM

WORD PROBLEM

Step 1: Figure out the problem _____

<div align="center">Write problem here.</div>

Step 2: Gather information.

    a. Breakdown. Break the word apart. See lists of prefixes (beginning of word) and suffixes (end of word) on next page.

      _____   _____   _____

          prefix   root   suffix

    b. Surround. Use information in other parts of the sentence or paragraph to define the word.

      _____   _____   _____

synonym (another word that means the same thing)	example of word	other words that are like the problem word.

    c. Other source. Look up the word or ask instructor.

      Glossary (in back of a textbook) _____

      Dictionary _____

      Instructor _____

    d. Best Guess. Guess the meaning of the word. Write the sentence in your own words.

Step 3: Check and Correct. Judge your Problem Solving Skills and write down the changes you want to make in:

Your best guess:

Your problem solving method:

Your reading method:

COMMON PREFIXES AND SUFFIXES

Common Prefixes (beginning of word)

PREFIX	DEFINITION	EXAMPLE
ad -	(to)	adjust (become used to)
at -	(from)	attract (to draw from)
be -	(by)	beware (by care)
com -	(with)	comfort (with strength)
de -	(from)	depart (leave from)
dis -	(apart)	disjointed (joints are apart)
en -	(in)	enrage (to put in a rage)
ex -	(out)	exit (go out)
in -	(into)	inject (to send into)
in -	(not)	invalidate (to make not valid)
pre -	(before)	prejudice (before judgement)
pro -	(in front of)	promotion (move in front of)
re -	(back)	return (bring back)
sub -	(under)	submarine (under the water)

Common Suffixes (end of word)

SUFFIX	DEFINITION	EXAMPLE
- al	(relation to)	educational relation to education
- ance	(state of being)	compliance (state of complying)
- ate	(one who)	candidate (one who may be chosen for office, membership or honor)
- ate	(to make)	violate (act of breaking a law)
- cion	(action)	coercion (the act of forcing)
- est	(comparison)	largest (comparison of size)
- ian	(relating to)	amphibian (relating to fish)
- ic	(like)	artistic (like an artist)
- lous	(abounding in)	ridiculous (abounding in humor)
- ize	(to make)	criticize (to make a critic)
- ism	(act of)	cannibalism (act of being cannibal)
- less	(without)	meaningless (without meaning)
- ness	(state of being)	happiness (state of being happy)
- ster	(one who)	gangster (one who is in a gang)
- ure	(act of process)	architecture (process of being an architect)

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WORD PROBLEM (Continued)

SURROUND

Look through other parts of the paragraph or passage for clues. Look for:

1. a synonym -   the author may define the word by using another
                   word which has a similar meaning.

2. an example -   the author may give you an example of the word.
                   You may be able to define the word based on this.

3. other words - the author may give you clues to the meaning by
                   words throughout the passage.

SENTENCE PROBLEM

SENTENCE PROBLEM

Step 1:   Figure out the problem: _____

           _____
                          Write the sentence here.

Step 2:   Gather Information.

           a. Breakdown. Break the sentence into parts: (a) subject-verb
               or (b) topic and comments. See next page for help.

           _____   _____   _____

               subject   verb   other

           _____   _____

               topic   comments on topic

           b. Surround. Use other sentences in the paragraph to figure out
               the problem sentence. Use the topics of the paragraph or
               other sentences to figure out the sentence. See page 37
               for help.

           c. Other Source. Use information from other books, lessons or
               people.

           d. Best Guess. Write sentence in your own words.

Step 3:   Check and Correct: Judge your Problem Solving Skills and write down
           the changes you want to make in:

           Your best guess:

           Your problem solving method:

           Your reading method:

BREAKDOWN

1. Subject-Verb -   Many people have trouble figuring out the subject
                    of a sentence. The order of the words is often the
                    best clue. The subject is often at the beginning of
                    the sentence. It is often followed by the verb which
                    tells you something about the subject. Look at the
                    example below:

                        The chopper landed in the field.
                        ↑clue   verb↖
                        means noun   ending
                        follows

2. Topic Words -   What is the sentence about? For example, is the
                    author telling you about school or cars? And what
                    is the author trying to tell you about this topic?
                    Example: Besides an airlift of HU-1 helicopters,
                             there will be a road convoy.
                                              topic

SURROUND

A pronoun (this, he, she, it, they) is often used to refer to a word used in an earlier sentence. Keep track of what each pronoun is referring to. Also, the author may continue the same topic or a related topic from sentence to sentence.

Example: The infantry must use many kinds of weapons
                  in all types of combat. It must be able to
                  fight any where at anytime. This ability is what
                  we call being ready.
                        topic

PARAGRAPH PROBLEM

PARAGRAPH PROBLEM

Step 1:   Figure out the problem. (Write out the paragraph if you need to.)

Step 2:   Gather information.
   a.   Breakdown. What is the author telling you? Link these ideas
        in an outline or Network. (See next page). To learn the
        meaning of the paragraph, break it into sentences.

   b.   Surround. Use information from other paragraphs. Find out
        how this paragraph links to the rest of the passage. You need
        to figure out the main idea of the passage and the links between
        paragraphs. (See next page).

   c.   Other Source. Use information from other books or talk to
        other people or instructors.

   d.   Best Guess. Write the paragraph in your own words or outline it.

Step 3:   Check and Correct. Judge your Problem Solving skills and write down
           the changes you want to make in:
           Your best guess:

           Your problem solving method:

           Your reading method:

    Maybe you have found out the topic or main idea of the paragraph, but don't
know how the sentences relate to the main idea. If so, use the information on
the next page to help you.

    If you have not found out the topic or main idea of the paragraph, the
information on page 41 may give you some clues.

HOW ARE SENTENCES <u>RELATED</u> TO THE TOPIC

(MAIN IDEA) OF THE PARAGRAPH

1. The sentence may <u>restate</u> the main idea of the paragraph in different words.

2. The sentence may <u>contrast</u> the main idea of the paragraph with another idea.

3. The sentence may <u>give examples</u> or <u>illustrations</u> that support the main idea of the paragraph.

4. The sentence may <u>provide evidence</u> for the main idea of the paragraph.

5. The sentence may be a <u>result or outcome</u> of the main idea.

6. The sentence may simply <u>describe</u> the main idea of the paragraph.

7. The sentence may contain a <u>subtopic</u> (a part of) the main idea.

8. The sentence may contain details <u>that are not important</u> and which do not belong in the paragraph. Such a sentence should be <u>disregarded</u>.

If you are not able to find the topic or main idea of a paragraph, use the guidelines below:

FINDING THE MAIN IDEA OF A PARAGRAPH

1. Read the first sentence of the paragraph. It has the main idea about 80% of the time.

2. If this is the topic sentence, think what the paragraph is going to be about.

3. See if the rest of the paragraph tells you something about this topic.

4. If the paragraph does tell you something about this topic then it is the topic sentence. <u>Put the idea into your own words</u>.

5. If the first sentence doesn't have the main idea, see if you can find the topic sentence. The next most likely place for it to be is at the end of the paragraph.

6. See if any phrase or sentence states a main idea.

7. If the topic sentence can't be found, find some <u>key words</u> or phrases. Put them together to see what they say. Then write a topic sentence of your own.

PASSAGE PROBLEM

PASSAGE PROBLEM

Step 1:   Figure out the problem.

Step 2:   Gather information.
   a. Breakdown. Break the passage into paragraphs. Figure out the topic of each paragraph. (See next page). Figure out the topic of the passage. Figure out the links between paragraphs and the topic of the passage. (See page 45). Use outlining or Networking to organize your ideas.

   b. Surround. Look in other parts of the book. Try the previous section, following section, overview, table of contents, summary, objectives.

   c. Other Source. Read other texts or talk to other people or instructors.

   b. Best Guess. Write an outline or Network of the passage.

Step 3:   Check and Correct. Judge your Problem Solving skills and write down the changes you want to make in:
   Your best guess:

   Your problem solving method:

   Your reading method:

Use the guidelines below to help find the topic of each paragraph.

HOW TO DETERMINE THE TOPIC OF A PARAGRAPH

1. Read the first sentence of the paragraph. It contains the main idea about 80% of the time.

2. If this is the topic sentence, think what the paragraph is going to be about.

3. See if the rest of the paragraph tells you something about this topic.

4. If the paragraph does tell you something about this topic then it is the topic sentence. Put the idea into your own words.

5. If the first sentence doesn't have the main idea, see if you can find the topic sentence. The next most likely place for it to be is at the end of the paragraph.

6. See if any phrase or sentence states a main idea.

7. If the topic sentence can't be found, find some key words or phrases. Put them together to see what they say. Then write a topic sentence of your own.

If you have found the topic of a passage but can't link the paragraphs to it, use the guidelines below.

"Relationship Sheet"
HOW ARE PARAGRAPHS RELATED TO A TOPIC?

1. The paragraph may <u>restate</u> the main idea of the passage in different words. The main idea of the passage as a whole and the main idea of the paragraph may be IDENTICAL, that is, just alike. Sometimes, two paragraphs say the same thing in different words. They share the same main idea.

2. Different paragraphs may <u>contrast</u> the main idea of the passage with other ideas. This is done by telling how the main idea is different from the others. The paragraphs might <u>compare</u> two ideas. This is done by telling how one idea is like another idea. In short, look for how the author <u>compares</u> and <u>contrasts</u> ideas.

3. More than one paragraph may give examples of the main idea of the passage. A paragraph may talk about an idea which is <u>part of</u> or a <u>type of</u> the idea that passage talks about.

4. Some paragraphs state a principle. Other paragraphs <u>give reasons for</u> this principle. These other paragraphs may give proof that <u>supports</u> the principle.

5. Paragraphs that give a principle may also be followed by paragraphs with more information about it. They can tell about results of the actions or ideas stated in the principle.

6. Paragraphs may <u>describe</u> or <u>qualify</u> the main idea.

7. Paragraphs may develop <u>subtopics</u> of the main topic of the passage. Each paragraph would then be related to the main idea by being <u>a part</u> of it.

These seven links between paragraphs and the topic of the passage are just a few of many you can think out. They are the major relationships. They should help you find out how the author organized the material.

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If you can't find the topic or main idea of a passage, use the guidelines below.

HOW TO FIND THE TOPIC OF A PASSAGE

1. Find out the topic of each paragraph.

2. Think about how these topics are related. (What information does each paragraph contribute?) See the relationship sheet on the previous page.

3. Write one or two sentences that tell about the topics of each paragraph. This is your statement of the topic.

SUMMARY

You have now used all three of the reading methods. They are:

1. Questioning

2. Networking

3. Problem Solving

As we said, one, two, or all of these may work for you. Or, you may want to combine two or three of them. You need to choose the best one for you. Then use it when you read to learn. One way to choose is to try each method for three or four days. Then choose the one that feels best to you.

Remember that your instructor will help you with any of these methods.

LEARNING STRATEGIES: MEMORY SKILLS MODULE

ACKNOWLEDGEMENT

MEMORY SKILLS

The Objective for this lesson on Memory Skills is:

You will be able to add to your memory skills.

You will do this by using mnemonics such as elaboration,
mental pictures and grouping.

Research shows that people are active learners. They work with and
think about what they are trying to learn. In the past, we thought that people
were almost like big cans. We thought that they just sit still and fill up
with information.   Teachers thought that students had to just sit there
while they filled their heads with new facts and ideas. But that's not true.
When someone tells you something or when you read something, you think about
it. You remember some parts better than others. You learn things quicker
when you are interested in them and when you know a little about them. Things
that are dull and strange take more work.

Another fact is that you are always students and you will always learn
new things each and every day. In fact, sometimes you learn a lot more than
you think you do. For example, think of your favorite football or baseball
team. You have probably learned some, if not all, of the players' names
and positions. You've learned the names and ranks of your friends since
coming into the Army. You've also learned your way around Ft. Ord. We all
learn new things every single day. Yet, some learning, especially learning
stuff from manuals and notes, can sometimes be hard and dull.

But, it doesn't have to be like that. It can be fun! Much of the
study that has been done on memory skills shows that there are easy and
fast ways to remember. That's what you will learn -- ways to help yourself
be better at the task of learning new things.

There are many kinds of learning aids that you may have used for years.
You may not know that what you were doing was helping yourself learn something.
One of the first aids that you may have used was the alphabet song -- "A, B, C,
D, E, F, G...." This was a good aid because it made the alphabet easier to

learn and to remember. Even that was pretty hard to do when you were five or six years old.

Here is another learning aid for those of you who were into music. Remember the phrase "Every Good Boy Does Fine?" It stands for the lines that music notes are written on: (E, G, B, D, F). The word "FACE" told you which notes go in the spaces between the lines.

```
                              F
              D                       E
          B               C
      G               A
  E               F
```
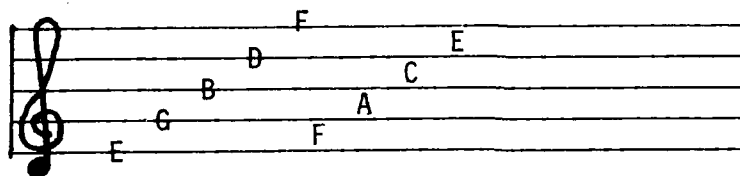
So, you see, this is not all new to you. What is new is the way you will use these ideas.

The name for these learning aids (tricks, skills, methods or whatever you want to call them) is MNEMONICS (nē-mon-ics) or MEMORY AIDS. In this lesson, you will learn about three kinds of Mnemonics: elaboration, mental pictures, and grouping.

ELABORATION

Elaboration helps you remember things by adding to things that you already know. For example, some people learned to spell the word "ARITHMETIC" by remembering the sentence, A Rat In The House May Eat The Ice Cream. When you put together the first letter of each of the words in this sentence, you will spell the word "ARITHMETIC."

Another example of this type aid is the word that you can use to remember the formula for shifting fire from a known point. The formula is:

$$\frac{W}{Rm}$$

It might be hard to remember this line as it is. By using an elaboration word, it is much easier: WORM stands for Width Over Range · Mils. So, you use each of the letters in the word to remind you of the formula.

Another aid you may already use is the word SALUTE. This word helps you remember what to report about the enemy.

Size

Activity

Location

Unit

Time

Equipment

Another way to remember the same thing is to say: Sarge Always Leads Us To Eat. Then take the first letter of each word to make a report.

Another kind of elaboration is one you can use when you arrive at a new post. It can help you remember where certain buildings are on the post. For example, let's say that you just got to your next post and you want to remember where these buildings are located.

Swimming pool	-	River Blvd.
Craft Shop	-	Carswell Blvd.
EM Club	-	Highland Street
Commissary	-	Locke Street
Theater	-	Silver Street
Snack Bar	-	French Blvd.

Here's a way to remember where the swimming pool is: by remembering that both the pool and river have water; and that somewhere along the way the water that is in the swimming pool was once in a river.

Another example would be to link the Craft Shop with Carswell Street. Remember that your favorite hobby (or the favorite hobby of someone you know) is working on your car. You could remember that the Theater was on Silver Street by remembering that it takes money (silver?) to get into the theater. Finally, you could link the Snack Bar with French Blvd. by remembering that french fries are served there.

Look at the rest of this list. Once more, what you need to do is to think of some way to bring the two words together so that you can remember

the street name. What would some elaborations be for these pairs?

EM Club	-	Highland Street
Commissary	-	Locke Street
Gym	-	"A" Street
PX	-	Main Street

Remember, this is a way to use things that you <u>already know</u> to help you learn what you are trying to remember.

MENTAL PICTURES

The next kind of memory aid you can learn is "mental pictures." This is a fun way to link words and ideas by making pictures in your mind. Here is an example you may try. Let's say you want to learn how to tell when your squad is hit with gas. This is a part of a task in your soldier's manual. It's called "Recognize a CB Hazard." CB stands for <u>C</u>hemical/ <u>B</u>iological. First, you know that gas may come from a big blast near you. So start by making a mind picture of a mortar round blowing up in front of you. See a big blast with lots of smoke going up (smoke is a sign to look for). Now watch the smoke change into a big nose running away. Really see a great big nose with two legs that are running. (A running nose is another one of the signs to look for.) Now watch as the nose drags your Sarge behind it. Sarge is pulled by a noose around his neck and chest. Old Sarge is choking so bad his eyes bulge out. (Choking and a tight chest are more signs to look for.) Now, in your "mind flick," put a blind fold on those big bulging eyes. (Remember that gas makes it hard to see.) Then watch as great big tears flood from the bulging eyes. (This is another sign to look for.) Now, watch as ole Sarge huffs and puffs to keep up with the running nose. He is breathing real hard. (This is the last of the key signs of a CB attack). Now, sit back and watch the whole show. The blast and lots of smoke. A nose runs out of the smoke pulling Sarge. The noose around his neck and chest is choking him. His eyes bulge out. You see the blind fold and great big tears. And then see how he huffs and puffs. Now you can tell anybody how to know when there is a CB attack:

- Mortar, rocket or artillery fire.
- Smoke, mist or vapor
- Running nose.
- Choking and/or tight chest.
- Dimming vision
- Irritated eyes
- Heavy, hard breathing.

See how easy this is?

You can also use mental pictures to help you remember the buildings on the new post that we talked about earlier. For example, since both pools and rivers contain water, you could see a pool being filled up with river water. Since rivers are often not very clean, you might see the pool fill up with beer cans, fish and tennis shoes along with the water.

Think about how the idea swimming pool and river might connect for you. It's very important to really think about your picture or story. Picture it clearly in your mind. You can make your picture as detailed and silly as you want. The more you think and concentrate, the better you will learn.

Remember, what we're doing is making up a mental picture or story which shows one thing doing something with another. If someone walked up to you and said, "Hey, where's the swimming pool?", you could picture in your mind a dirty pool with a lot of people in bathing suits standing around the pool holding their noses. Then you could say, "The swimming pool is on River Street."

Let's take another example: 'Craft Shop - Carswell Blvd." The Craft Shop has lots of kinds of tools and equipment. One thing many people use the Craft Shop for is to work on their cars. So, you can link hobby with car repairs. A good picture of this might be a big building with a few open garage doors across the front. The words "Craft Shop" are painted above the doors. You can see people in each of the stalls working on their cars. In other words, when you decide to go to the Craft Shop, you picture all those cars and know that you need to go to Carswell Blvd.

Let's look at the rest of the list. What are some good, active mental pictures for:

Commissary - Locke Street	Commissary is like a Safeway; a safe has a lock
EM Club - Highland Street	EM Club/booze/high
Theater - Silver Street	Theater/The Silver Screen
Snack Bar - French Blvd.	French fries at the Snack Bar

Another example of the use of mental pictures to remember things is called "one is a bun." It is an aid that rhymes and you can use it to learn lists of things in order. You'll see what we mean in a few minutes. Right now, look at these number-word rhymes.

One - Bun
Two - Shoe
Three - Tree
Four - Door
Five - Hive

The first step in using this aid is to remember which words go with which numbers. That should be easy. You might know some of them from the rhyme: "one-two, buckle your shoe; three-four, shut the door; five-six, pick up sticks; seven-eight, close the gate; nine-ten, a big fat hen." They all rhyme in a way that's easy to remember.

Take a few minutes now to learn the words that go with the numbers. Once you know the words, we'll show you what to do with them. Use a pencil and paper to test yourself. Go ahead; if you have any questions, just ask your instructor.

The next step in using this memory aid is to get your imagination working. Once you've done these two things, the rest is fun. Here's an example. Here is a list of brands of beer you may know:

1 - Lone Star	4 - Budweiser
2 - Pearl	5 - Schlitz
3 - Coors	

What you are going to do is to learn this list of beer brands, in order.
You will use the memory aid "one is a bun." So if we asked you, "What is
the 3rd brand on the list?", you would be able to remember that it was Coors
right away.

Okay, here's how you do it. You've learned the words that go with the
numbers 1 through 5. One-bun, two-shoe, three-tree, four-door, five-hive.
Now comes the fun part - using your imagination. Number one on the list is
Lone Star. In the rhyming memory aid, the number one is a bun. Now, get a
really clear picture in your mind of a bun doing something with a Star.
Picture an active scene, one that's really doing something. For example,
it would be okay to imagine a star between two halves of a bun--a star
sandwich. It would be even better to imagine someone that you don't like
biting down into a tin star sandwich. See him breaking all of his teeth.
Give this a try. Close your eyes and get this picture as clear in your mind
as possible. Someone is sitting in the snack bar with a star sandwich. He
bites down on it. His teeth crack and break. Boy, he looks silly! The
important parts of this picture are the bun and the star. This might sound
kind of silly but there's a good reason for that. It is kind of silly and
that helps you to remember it.

The idea is that beer brand #1 is Lone Star. Since one is a bun, we
want to put Star and Bun together. If I ask you, "What's the number one beer
on the list," you would think, "one is a bun." Then you picture, in your mind,
the scene that you imagine which put star and bun together. Another example
of what you might picture could be a great big star, sitting at a table in a
nice restaurant eating a hamburger bun. The bun is the size of a truck tire.
Remember, make your mental picture an active one. Make it a crazy one if you
want to. Make it one you'll be sure to remember.

Let's look at #2--Pearl. Remember now, two is a shoe, so you want to
see a shoe doing something with a pearl. For example, see a large white pearl
with skinny legs marching in a parade. The pearl is wearing a pair of bright
orange shoes that are bigger than the pearl itself. Or imagine a great big
shoe, the size of a house. The shoe is falling from the sky and hits a white
pearl the size of a man. Again, give this a try. Close your eyes and see a

man-sized pearl sitting in the middle of a field. All of a sudden you see a house-sized shoe falling from the sky. It breaks the pearl into a million pieces.

Again, this sounds crazy, but that's good. The sillier, more active, the better. It helps you to remember. If I asked you, "What's the number 2 beer brand?", you could say to yourself: "two is a shoe." Then you could see that pearl being smashed by the huge shoe from the sky. The answer would be Pearl.

Let's practice this a little more because it's important. Remember, our goal is to learn the five beers on the list in order. Now not all of these brands will be that easy. You may need to change the beer name a little to get a good picture. For example, number 3 on the list is Coors. But the word "Coors" doesn't really call up a picture like star or pearl do. So, if we find a word similar enough to Coors, it will still work. For example, by changing the first letter from "C" to "L," we have "Loors"-like you use when fishing. So your picture can have a tree (three is a tree) doing something with lures. This sounds enough like Coors to help you to know that brand #3 is Coors.

Again, see a scene where a tree is doing something with a fishing lure. You might see yourself casting into a river and getting your lure caught in underwater tree limbs. It would be even better to see a scene in which you cast your best lure. Then just before it hits the water, a tree jumps out and grabs your lure and stuffs it into its mouth. When I ask, "What's the third brand of beer?", you could remember that "three is a tree." Then remember the image of a tree grabbing your lure and that will remind you that #3 is Coors.

Let's go on to #4 - Budweiser. Again, you will need to do something with the word. How about using Bud Man? Since four is a door, we need to have a scene in which a door does something active and exciting with Bud Man. Close your eyes and make a picture of a door and a Bud Man. Take some time now to do that.

How about #5--Schlitz--five is a hive? Make that picture now.

Now, to make use of what we've done, try to recall the list in order.
You can do this by thinking of brand #1--"One is a bun." Then think of the
image you saw that had the bun. Ours was a star sandwich breaking some teeth.
Now, two is a shoe. You remember the shoe crushing the pearl.
    Three is a tree - (grabbing the lure) - Coors
    Four is a door - Bud
    Five is a hive - Schlitz

That's all there is to it. You've learned the list in order. Although
this list was pretty easy, it works just as well with longer lists and more
difficult items. For example, you can use it for things that you have to
learn out of a tech manual or field manual.

When you put elaboration and mental pictures together, it will help you a
lot. The next example shows you how to do this. See yourself in this situation.
You have borrowed a friend's apartment for the night, and you have a really
sharp date. You plan to "wine and dine" your date at the pad before a late
flick. Here's the list of things you want to have:
    Wine
    Crackers
    Cheese
    Charcoal
    Charcoal Lighter
    Steaks
    Potatoes
    Corn on the Cob
    Lettuce
    Tomatoes
    Green Onions
    Cherry Pie

There is no need to write down a list of any kind. Even one this long or longer is easy to learn. Just use mental imagery and elaboration together. Imagine your great night in your mind while you shop for the things on the list. Your mind flick might go like this. The doorbell rings. That special someone comes in and the first thing you do is offer a glass of wine. (Ah Ha, wine is #1 on the list). While you talk, you offer the cheese and crackers (#2 and #3 on the list). After awhile, you start the fire (charcoal and charcoal lighter, #4 and #5). When the fire is ready, you put the steaks and potatoes on to cook (#6 and #7); while that's cooking, you put the corn (#8) on to cook. Then you ask your special friend to make the salad out of lettuce (#9), tomatoes (#10) and onions (#11). Now see yourself at the table. As you look at your plate, all of your food items are there: steak, potatoes, corn on the cob, and salad. Then, you serve the cherry pie (#12) for dessert. You've learned your list without really trying!

GROUPING

Grouping is the third type of mnemonic that we want to tell you about. This learning aid is based on the idea that when you break long lists into smaller pieces it makes them easy to remember. For example, your social security number has nine numbers. If you had to know each of these nine numbers in the exact order it might be kind of hard. But for most of us, it is easy to remember. We just break it down into three groups. The first group has three numbers. The second group has two numbers. And the third group has four numbers. Say your number to yourself and see. It is easy to remember this way.

Another example of grouping is how you learn telephone numbers. Phone numbers have seven digits. That by itself might make it hard to remember. But you break those seven numbers into two groups and that makes it easy to remember like 394-4276.

Grouping can also be used to learn the steps of a set procedure. For example, the SQT task "Stop Bleeding" may seem hard. It is easy to remember

when you break the task down into six steps:

    (a) Check Wounds

    (b) Cut Clothes

    (c) Don't Touch

    (d) Bandage Wound

    (e) Hand Pressure

You can then use elaboration to learn these steps. For example, use the first letter of each of the words in the steps to make C-W, C-C, D-T, B-W, H-P. Then to remember CWCCDTBWHP, put these letters into a sentence: Crazy Wars Can Cut Down The Big World's Happy People. So, the steps to stop bleeding are CWCCDTBWHP or Crazy Wars Can Cut Down The Big World's Happy People.

Since you have learned a lot of new ideas in a short period of time, let's review. We've talked about three different types of mnemonics that can really help you learn new things more easily and quickly.

These are:

1. Elaboration - make sentences and stories that make new ideas mean more to you. This links new ideas to what you already know. Think about the example of the Snack Bar on French Street (french fries).

2. Mental Pictures - make pictures in your head that link words and ideas. Remember the list of the five brands of beer.

3. Grouping - break long lists or steps into small pieces. Then using imagery and elaboration to learn them. Remember the list of steps to stop bleeding.

These aids will help you to remember your grocery list as well as your soldier tasks. When you think about it, most of the new things you have to learn and know come from what you read--like paragraphs, lessons, and chapters. The next time you sit down to read, you may use elaboration, mental pictures or grouping to learn the new things.

Now you have a few more ways to read and learn. Using these aids may take a little more time at first. When you get used to them, you will be surprised at how fast and easy you can learn. Using these aids is a lot better than some of the old ways you tried to read. Keep using these aids. You will enjoy it!

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LEARNING STRATEGIES: CONCENTRATION MANAGEMENT

ACKNOWLEDGEMENT

The objectives of this lesson are:

1. You will know the difference between good learning moods and bad learning moods.
2. You will use ways to change your bad learning moods into good learning moods.

Setting a Good Mood

Most of you know that when you're in a good mood, learning seems to go more easily. You can do more work in less time, you feel better, think better--all those good things. What is not as well known is that you can change your mood. We have found that some people think moods are made by things outside of their control. They think other people or things make their mood. This is not true! MOODS ARE CONTROLLED BY WHAT YOU THINK OR TELL YOURSELF.

Let's look at some ideas that make up "bad" study moods. We mean those moods that hurt our learning. And we will look at those feelings that make up "good" learning moods.

Feelings that go with bad learning moods are: anger, fear, boredom, stress, sleepiness, self-pity, guilt, and lack of self confidence. You probably have had these at some time or another when you try to learn. You know these feelings can ruin a good learning mood. Often you just quit. Sometimes you stick with it but you don't get far because you are tired and feeling uptight. Sometimes you can force yourself to ignore these feelings. But even then, they get in the way of your learning. They slow down your thinking and cause you to daydream or get confused.

Feelings that go with good moods--happiness, excitement, fun, hope, confidence, alertness--can lead to a good or poor learning mood. It depends on whether or not the feelings are linked to learning. For instance, if you're excited about what you're reading, you are into your work. But if you're excited about what you're going to do later that

evening, you may be in a bad study mood. "Bad" means the feelings lead you away from a good useful session.

In short, what are usually thought of as good feelings (such as happiness or excitement) do not make a good learning mood if they are not tied to what you are learning. So, you may be feeling happy and still be in a "bad" mood to learn. This is true if your happy feelings do not have anything to do with what you want to learn.

The best learning mood is one where you are relaxed yet alert. Your head is clear of the hassles of the day. You are full of energy and ready to start. What is great is that you can make this mood for yourself.

Study shows that when you <u>expect</u> something to happen in a certain way you will do things without thinking. And these things make sure that what you expect comes true. This means that if you think you are going to have a bad time learning, you will do things to make yourself unhappy. You do them without knowing and then what you expect comes true. This same thing happens over and over again in almost everyone's life. Some people have built up the idea that they are not very smart. They do things to make sure that this idea comes true. They will think less of themselves. They become upset when they have a problem. And they do poorly on tests. This is what is often meant by the "self-fulfilling prophecy."

The result of all this is that some people get caught in a no-win game that makes their learning unhappy and unproductive. Their negative thoughts or feelings about everything cause them to have bad experiences in learning. These then cause their feelings and thoughts to be even more negative. And around and around they go--getting nowhere!

How do you get out of this? One way is to look closely at what you feel and believe about yourself. Look at what you think about the Army, life and learning. When you look at these feelings and how they link with your life goals, you can often make big changes. Many thoughts about life

and your ability to learn were made when you were young. We know now that these thoughts were <u>not</u> made in a smart way. They were made from a lot of different experiences and conversations. Most people have not looked at their feelings and where they came from. Once you do this, you find that many thoughts don't make sense or are out of date. Making new attitudes and beliefs that are in line with your goals and recent life experiences will help your learning be more fun.

So, one set of things to talk to yourself about is your attitude toward learning, thinking, life and school. And also talk about your attitudes toward your abilities and motivation. You will make positive attitudes and your learning will be more fun and useful. You will get the most out of the time you spend learning. And you will not waste time doing it!

In summary, your learning mood starts before you ever sit down to learn. The things you tell yourself about learning, and your ability, make your attitude or mood. This attitude or mood will have a lot to do with how you learn. The way to deal with this is to look at what you say to yourself before starting to learn.

If all of this does not seem clear, read on! You are going to see how to <u>set</u> a good mood and how to <u>keep</u> a good mood. You will do this by using some concentration exercises. These exercises will show you how to turn a bad mood into a good mood. You will read a sentence or two about the thoughts of a person who is in a bad mood to learn. Then you will write down how you would talk yourself out of this bad mood if you were that person.

Before we start these exercises, we will say something about relaxing. Earlier we said that it is best to learn when you are relaxed yet alert. Some people say they get uptight every time they sit down to learn. These same people also say they don't know how to relax.

If you are tense or uptight you can relax this way: take in a
very deep breath, hold it for two or three seconds, then very slowly
let it out. It is best to repeat this deep breathing one or two times.
A lot of people find that when they slow down their breathing like this,
their heart rate slows down and they stop being uptight. Here are the
exact steps for Slow Deep Breathing.

SLOW DEEP BREATHING

1. Don't think about learning for 20 to 30 seconds. A few seconds
    won't cost you anything, and it may gain you much.

2. Sit back or slump into a position that is comfortable and
    relaxed. Close your eyes.

3. Relax all the muscles of your body. Don't do a halfway job.
    Relax entirely and all over. Don't try to relax so much as
    just let go of all muscles and tension. Let them go loose and
    heavy. A good way to help this along is first tense all muscles
    while in the comfortable position; then hold the tension for
    about five seconds (throughout the body), and then let go and
    relax all muscles entirely.

4.* After you let go and relax, take in a very deep breath and hold
    it for a few seconds. Then very slowly let it out. Repeat this
    once or twice, and keep your eyes closed.

5. You can relax even more and help lose any tension if you think
    to yourself the words "calm" and "relax." Think or picture
    these words to yourself as you slowly let out the breath.

*   Step (4) (taking slow deep breaths) is the most important step.
    The other steps help you get ready for this.

TIMES FOR CREATING A GOOD MOOD

There are three times when your mood or negative thoughts can really get in the way of learning. One is when you are trying to decide whether or not to sit down to learn; two is when you sit down to learn and you have a lot of other thoughts and feelings in your head; and three is during your learning session. Following are three sets of exercises. Use them to learn how to set a good mood.

These exercises will help you learn to talk to yourself. This helps you take control of problems and find good solutions. In other words, when people, like you, have a bad learning mood, you may say things like, "I hate this crap" or, "Every time I even think about trying to learn, I get so tense." This is your "old self" talking. It puts you in a bad study mood and lets your moods control you. Your "new self" will control those moods and make a good mood to learn. You will say things like, "This BSEP course may be boring but my life isn't. It's up to me to get the most out of this course and prepare myself for moving on in my life."

In other words, your "new self" and your "old self" talk to each other. They try to win the learner over to their side. If the "new self" wins, the learner will be in control of his moods, and he will get a lot out of the BSEP course. If the "old self" wins, the learner will lose control of his moods and may not get a lot out of the course.

Your job for these exercises then is to read the statement of the "old self." Then write down what you would say to yourself as the "new self" who is in control of your mood. Use your own words as if you were talking to yourself. Then look at the "new self" statement that other people have written. If you think your answer could be better, then rewrite it. This exercise will give you skills in spotting a poor attitude or bad mood (old self). You will then know how to talk yourself into a good mood (new self).

Here is the way to do the exercise. Take a piece of paper and cover the "new self" talk. That's the part under the blank lines. Cover it without reading it.

Now read the "old self" talk. Then make up your own "new self" words and write it in the blank lines.

After you have done this, then look at the "new self" talk that we wrote. It is important that you write your own "new self" talk first. Then compare yours with what we wrote. If you can make your talk better, change it now. Then go on to the next "old self" statement.

Exercises For Problems Which Occur Before You Start To Learn

OLD-SELF:
"I HATE THIS CRAP!":

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NEW SELF:
"Okay. This course may be boring but your life isn't. Its up to you to get the most you can out of this course and prepare yourself for moving on in your life."

OLD SELF:
"EVERY TIME I EVEN THINK ABOUT LEARNING, I GET SO TENSE!"

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NEW SELF:
"That's the time you need to work on your attitude. You can make a list of what you need to do. That will make you feel less up-tight because you can

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check things off the list as you finish them. That will make you feel like you're getting someplace. You can _relax_ as you think about learning. Expect some tension and deal with it."

OLD SELF: ·
"WHENEVER I NEED TO LEARN, I THINK ABOUT MY FRIENDS, TURN ON MY RADIO, OR PLAY AROUND WITH THE GUYS IN THE HALL."

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NEW SELF:
"You could limit these types of things to 5 or 10 minutes. Then work on your attitude (by relaxation and good self-talk). You could get yourself excited about learning while you're getting your stuff together."

OLD SELF:
"I'M SO UPSET. MY BUDDY WAS DISCHARGED. MY DAD LOST HIS JOB. I JUST CAN'T WORK WITH ALL THESE PROBLEMS ON MY MIND."

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NEW SELF:
"You really need to go off for awhile and relax. First, you should talk to your buddy and dad. Tell them how you feel and that you wish you could help. Give yourself a set amount of time for this. Then come back and begin learning. Reward yourself for doing small things. Calm yourself by doing the Slow Deep Breathing exercises."

OLD SELF:

"I'VE HAD A REALLY HARD DAY TODAY AND DESERVE A BREAK. THIS STUFF IS A
WASTE OF TIME ANYWAY."

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NEW SELF:

"You're just making excuses for not learning. In the long run, it won't do
you any good to put it off. You need to get into a good mood. Relax and
get to it."

OLD SELF:

"I NEVER HAD TO LEARN LIKE THIS BEFORE. WHAT'S WRONG WITH ME NOW?"

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NEW SELF:

"Some Army jobs are a little tougher than what you had before. You wanted

to challenge and improve yourself. Here you are in the Army. You want that

job, so let's get on with it."

OLD SELF:

"I COULD LEARN IF I WEREN'T SO FRUSTRATED:"

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NEW SELF:

"Maybe you should figure out why. Maybe it's because you don't get your work done. Feeling frustrated only makes things worse. You need to work on your attitude. Also, you need to break this task down into smaller parts. Reward yourself for each step forward! You may need to take a break to work off some of this tension. Maybe you should jog for a mile or two. You can think about your situation while you're jogging. Then set a plan to get back to work."

OLD SELF:

"IF I WEREN'T UNDER SUCH TIME PRESSURE, MY ATTITUDE TOWARD LEARNING WOULD BE BETTER!"

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NEW SELF:

"Maybe your attitude gets you there in the first place. If you had a more positive attitude you might get your work done faster and better. Take control of your attitude. List tasks to be done. Tell yourself you are going to do the work."

The message that comes out of all of this is pretty simple. It is also the most important way to improve your life: change the way you think (talk to yourself) and you will change the way you feel. Talk to yourself in a more positive, productive way, and you will start to feel better. Once your experiences are more positive, the number of negative thoughts you have will decrease.

Now, you've learned how to get yourself to start learning. You've sat down with your manuals but your head is somewhere else. You can clear your head. Just relax and talk to yourself just like you did to get yourself to start to learn. The next set of exercises deal with how to spot and change thoughts that lead to a bad mood <u>after you sit down to learn.</u>

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<u>Exercises To Spot And Change Thoughts That Lead To A Bad Mood After You Sit</u>
<u>Down To Learn</u>.

Here are some thoughts that people have after they sit down to learn.
Do this exercise the same as the last. First cover the "New Self" talk
under the blank lines. Read the "Old Self" statement and then write down
what you would say to yourself if you were that person and wanted to get
into a good learning mood ("new self"). Use your own words. <u>Talk to yourself</u>.
Then, look at the "new self" statements other persons have made. If you
think your answer can be improved, rewrite it. This exercise will help you
spot a poor attitude or bad mood ("old self") and then know how to talk your-
self into a good mood ("new self").

OLD SELF:
"I AM SO UPTIGHT; I CAN'T SIT STILL! MY NAILS ARE CHEWED DOWN TO THE QUICK
AND I'VE LICKED MY LIPS SO MUCH THAT THEY'RE CHAPPED!"

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NEW SELF:
"Well, you usually get uptight when it's time to sit still and study. You
could do some physical exercise for a few minutes, I guess. You will probably
settle down if you just <u>relax</u> and get into the task."

OLD SELF:
"IT SURE IS NOISY IN HERE!"

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NEW SELF:

"You need to stop listening to everyone else's talking and stop watching the door. If you just get into learning you won't hear all that any more. You need to re-set your mood."

OLD SELF:

"I KNOW THAT I SHOULD RELAX AND SET A GOOD MOOD BUT THAT WILL MAKE ME SLEEPY."

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NEW SELF:

"Where will you be if you don't set the mood? Besides, if you do get sleepy, you can get going again by Slow Deep Breathing. Or do some physical exercises."

Finally, few of us go through a learning session without losing our concentration once or twice. Sometimes the things you think of are things about what you are learning. Most of the time, though, the thoughts are about something else. Your job is to change this. Let's look at some of the things other people think about while they try to learn.

Exercise For Changing Thoughts While Learning

Here are some thoughts people have while they learn. Just as before, cover the "New Self" talk first. Read the "Old Self" statement. Then write down what you would say to yourself to get into a good mood ("new self"). Use your own words. Talk to yourself. Then, look at the "new self" talk we wrote. If you think you can improve it, rewrite it. This exercise will help spot a bad mood and then know how to talk yourself into a good mood ("new self").

OLD SELF:

"BOY, I BETTER NOT FLUNK THIS NEXT SQT TEST."

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NEW SELF:

"You're not going to flunk the test because you're using the new study methods which your instructor showed you. Keep on trying!"

OLD SELF:

"THIS MANUAL COULDN'T BE HARDER TO UNDERSTAND. THE STUFF WOULD BE INTERESTING IF I DIDN'T HAVE TO WORK SO HARD TO GET IT."

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NEW SELF:

"At least the stuff's important! You better do something to it so it will make sense to you. You could pretend you're an editor--and write it in your own words--it might be fun! You know that would help you understand it better."

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OLD SELF:

"I'M STARTING TO DAYDREAM. IT'S SO HARD TO THINK ABOUT THIS STUFF."

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NEW SELF:

"Okay. You'd better straighten up now before you give up! What's bothering you? I think I'm tired because this stuff is so hard. You need to break this up into small parts. Then reward yourself for getting each part learned and staying calm and controlled."

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OLD SELF:

"I CAN'T WAIT TILL FRIDAY! THE PARTY IS GOING TO BE REALLY BAD!"

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NEW SELF:

"Friday's a long way off! You have a lot to do in the meantime. Besides,
if you get behind between now and Friday you won't have as much fun at the
party--so get with it!"

OLD SELF:

"THIS ROOM IS SO DEPRESSING! I COULD LEARN IF I WERE SOMEWHERE ELSE."

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NEW SELF:

"You have to study here. You have to train yourself to learn anywhere. You
can find something nice about it. Or simply ignore it. You can set a good
mood."

OLD SELF:

"THIS IS SO HARD! I DON'T SEE HOW IT HAS ANYTHING TO DO WITH MY JOB!"

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NEW SELF:

"Make a game out of this! You need to find out how it links up with
what you learned before. Maybe you could talk to some other people or
the instructor. Yes, it's hard but it will be easier the next time you
go over it."

OLD SELF:

"I DON'T UNDERSTAND THIS. MY EYES ARE JUST PASSING OVER THE PAGES."

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NEW SELF:

"Okay. What's the problem? Don't just say you don't understand. Think what
you can do about it! Figure out what's wrong. Ask for help if you need it."

OLD SELF:

"I'VE GIVEN THIS MY BEST SHOT AND I STILL DON'T KNOW IT."

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NEW SELF:

"Try the instructor or the Sarge. That's what they are there for. Go on!"

OLD SELF:

"I DON'T HAVE MUCH TIME LEFT, SO I BETTER HURRY! NOW, ALL I CAN THINK ABOUT
IS HURRYING!"

_____

_____

_____

_____

NEW SELF:

"Don't worry about the time. You need to complete the 'goal' as best you can. You can always add on to it tomorrow. Doing a good job of this is more important than being 'thorough' and having nothing to show for it!"

OLD SELF:

"IF I DON'T MAKE A GOOD SHOWING I'LL REALLY BE IN HOT WATER! EVERY SENTENCE I READ LOOKS LIKE IT MIGHT BE A TEST QUESTION!"

_____

_____

_____

_____

NEW SELF:

"If you keep worrying, you won't do well! Even if you were to mess up, there's always another chance. You'll do well because you're learning how. Look at sentences in terms of test questions. It is good practice for the test. Just relax!"

SUMMARY

Now you are your own coach. Just remember that a good coach MOTIVATES you when you're acting tired, bored, lazy, and generally want to blow it off.

How?	By telling you to FIRE UP:	"Okay, let's get with it."
	By telling you to KEEP GOING:	"You'll feel better if you finish this section."
	By REWARDING:	(Celebrate small things!) "Good, you're on the right track now!"

A good coach also RELAXES you when you're acting tense, uptight, frightened, angry, frustrated or losing your state of "relaxed attention."

| How? | By telling you to RELAX: | "Take it easy." "Just stay calm." "You'll do OK." "Conserve your energy now." "Do some Slow Deep Breathing." |

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A good coach DIRECTS you by giving you positive ideas or hints about how to improve your learning.

Examples: "You are not reading carefully now--you didn't get that. Go back and think!"

"You're getting off the track. Get back to it."

"Slow down--better read this more carefully."

"This is important."

"Do you understand that?"

"Are you getting the Big Picture? Do you understand how that relates to your learning?"

And a good coach LEAVES YOU ALONE when things are going well.

Maybe you have found that coaching yourself into a good study mood takes some work. Then use the worksheet at the end of this lesson to help. Write down what happens when you lose your good mood (concentration) and how you talk to yourself to get back on track.

TO SUM UP: YOU CAN CREATE A "GOOD" LEARNING MOOD. JUST:

(1) TALK YOURSELF OUT OF STATEMENTS THAT LEAD TO A BAD MOOD.
(2) RELAX.
(3) BE IN CONTROL OF YOUR SITUATION (WHICH MEANS DO (1) AND (2)!)

DO THIS WHEN: (1) YOU ARE TRYING TO DECIDE IF YOU SHOULD LEARN;
(2) WHEN YOU BEGIN TO LEARN;
(3) WHILE YOU LEARN.

What Made You Lose Your Concentration?	How did you feel?	What did you say to yourself?	Was it Productive? (leads you toward your goal of having a good study session)	What could you have said/done?
1. Setting (Noise, Temperature)	a. Uptight?			
2. Stress/Feeling Poorly	b. Frustration?			
3. The Material (Difficult, Boring)	c. Sadness			
4. Judging My Work	d. Fear of Failure?			
5. Daydreams/The Future (Test score, grade average, etc.)	e. Uncertainty?			
6. Other	f. Anger?			
	g. Other?			

LEARNING STRATEGIES: TEST WISENESS MODULE

ACKNOWLEDGEMENT

TEST WISENESS

The objectives of this lesson are:

1. You will complete tests on time.

2. You read and understand test directions and test questions.

3. You will know how and when to guess on test questions.

4. You will know what to do when you are not sure of the correct answer.

5. You will understand that test anxiety is a habit.

6. You will control any test anxiety you may have when taking a test.

Test taking is a skill just like reading or hitting a baseball or swimming. Sometimes two people get the same score on the same test even though one of them knew a lot more than the other one. This is because one had better test taking skills. When people are uptight or don't know how to take tests, their scores will <u>not</u> show how much they really know about a subject.

Poor test skills and high test anxiety can both be corrected. A person just needs to learn more about the right test skills. This lesson on Test Wiseness will teach you how to take tests. You will learn to use clues in the test to get a good score.

Before we get to the skills part, we want to clear up three rumors. First, some people think that test-taking skills are a way to "beat the test." Others think that test-taking is a natural skill. So they think it cannot be taught or learned. And, others think that these skills are no good because they think that tests just show what a person knows. All three of these thoughts are wrong! Read on to see why.

1. <u>Beating the Test</u>

This rumor comes from the idea that a test is like a game of cards where the deck is stacked. The test is to fool the student. And, therefore, a person

has to find out the "code" or "trick" to get a good score.

To show that this idea is <u>not</u> true, ask yourself two questions. First, "Why would anyone write a test just to see if you can out-guess the instructor?" Second, "If the test is to see how much you know, isn't it dumb to not learn and just try to out-guess the instructor?" So you must <u>learn and know how to take tests.</u> It is also not a way to just guess or "luck out"

2.   <u>Good Test Takers Are Born, Not Made</u>

People can improve their test-taking skills. This has been proven by many studies. You will learn this skill like you learn other skills: You just need to train and practice. You <u>can</u> learn and improve. Many programs to improve test-taking skills have been very successful. Again, the test skills you will learn <u>cannot</u> replace the knowledge you have to have. They <u>will</u> help you get good test scores.

3.   <u>Test Scores Are Always Right</u>

This rumor comes from the idea that test scores <u>always</u> give a true picture of how much you know. But we now know that test scores do not always show how much a person knows. For example, we know that test scores are not good if a person is really uptight while taking a test. In most cases, there is some <u>increase</u> in test scores if the person is a little uptight. But lots of anxiety makes test scores go <u>down</u>. Test scores get a lot worse when anxiety is very high. So, when anxiety goes down, test scores go up. This improvement comes from getting rid of too much anxiety so that people can really show what they know. We know that the more you know about how to take a test, the less test anxiety you will have.

Test Wiseness Is:

Now we have gotten rid of what test wiseness is <u>not</u>. Let's talk about what it <u>is</u>.

Then we will talk about how you get and use this skill. As we said before: <u>test-wiseness</u> <u>is using clues in the test to get a good score.</u>

You will learn to be test wise in two ways: (1) by learning some easy test-taking steps, and by using some good tips; (2) and by doing some exercises to practice using these steps and tips.

One more thing before we start. There are two main types of tests: objective tests and essay tests. We will only talk about objective tests. In fact, we will talk about one type of objective test--the multiple choice (or multiple guess) test.

OBJECTIVE TESTS

Multiple choice questions are the most common type of objective test question. You will remember that the tests you took when you came into the Army were multiple choice tests. And part of the SQT has multiple choice questions. Multiple choice questions are used to test a lot of skills and abilities. This means that once you learn these test skills, you can do well on almost any multiple choice test.

General Test-Taking Information

There are three basic steps to good test-taking. These are:

1.   <u>Time Management</u> or the ability to time yourself so you finish on time.

2.   <u>Careful Reading</u> or the ability to read and understand directions, questions, and options.

3.   <u>Appropriate Guessing</u> or the ability to know how and when to guess.

1.   Time Management

Most tests have time limits. You only have a set amount of time to finish the test. It is important for you to time yourself so you finish on time. One way to time yourself is to figure out how much time to spend on each question.

For example, let's say that there are 60 questions on a test. And you have to finish in one hour (60 minutes). With easy math you divide 60 minutes by 60 questions. This shows that you can spend about 1 minute on each question. Now, you don't have to clock the time you spend on each question. Just knowing that you have one minute per question can help you judge how fast to work. So, if you complete ten questions in ten minutes, you are working at about the right speed. Or, if you have only done ten questions in 30 minutes, you know you spent too much time on each question. If this same pace goes on you will not finish on time.

Some test questions are easier than others. The hard questions take more time than the easy ones. Most multiple choice questions are worth the same number of points. So if you spend too much time on hard questions it will slow you down. This brings your test score down. It is important to know that when you get "hung up" on hard items, it can cost you points. To keep this from happening, you can do three things: (1) read all questions carefully; (2) if you don't know the answer, make a good guess; and then (3) put a check mark next to questions that confuse you. Then when you finish the test you can spend more time on the checked questions. And you can go back and change answers if you need to.

2.   Careful Reading

Some people don't read the directions for a test carefully. And then they lose a lot of points because of it. Read the directions and each test question carefully and you will do well on any test. Careful reading is a skill you can learn. Here is a guide to help you improve your skill in this area.

A. Test Directions

Test directions tell you the _what,_ _when_, _where_ and _how_ of good answers. You have to understand these. If you do, the chances are pretty good you will not make silly mistakes. And your score will be much higher. And _you can be a careful reader._ Now let's look at some test directions.

Example: HOW TO TAKE A TEST
This is a multiple choice test. It covers tasks which are critical to your Military Occupation Specialty (MOS). For each task there will be a series of questions. Each question will have from two to five possible choices and _one_ correct answer. Blacken the space on your answer sheet that matches your selection.

This gives you the answers to each of the four key question words. That is, the _what_ is to select the best response; the _when_ is after you read carefully the two to five possible choices; the _how_ is to blacken the matching space (A, B, C, D or E); and the _where_ is on the answer sheet. _Since you must understand test directions, you should ask yourself these four questions before you start the exam._ _What?_ _When?_ _How?_ _Where?_

You need to learn to see and understand key test words in test directions. This helps you get the most test points. For example, words like _not_, _except_, _all_, _only_, and _none_ can make a big difference. You have to see and understand them. Some examples of tests directions that use these words are:

Example: DO NOT MAKE ANY MARKS IN THIS BOOKLET

Example: To change an answer, clearly erase the selection you wish to change and mark the appropriate answer. Do _not_ X out unwanted answers.

Example: Give _only_ _one_ good answer to each item.

So, it is a good idea to read all test directions <u>carefully</u> and <u>completely</u> before you start the test. If you don't understand the directions, ask the instructor or proctor for help. Clear up any questions you have <u>before</u> it is too late.

B. <u>Test Questions</u>

It is important to be careful when you read each test question. If you don't understand each one, it will be hard to pick the right answer.

One thing that confuses people is the way some questions are written. Some test questions, like the one below, are short and easy to understand.

<u>Example:</u> What is an effective method of concealment while crossing an obstacle?

    a. Small arms fire
    b. The artillery
    c. Smoke

Correct answer: "c"

This is not a hard question to understand. All you have to do is figure out which of the three answers is right.

All questions are not that easy to understand. Some are long or have long words. These kind of test questions need to be read very carefully. For example, you need to read the next question carefully before answering.

<u>Example:</u> General situation for questions 1 through 3. While en route to a new defensive position, your squad comes under enemy sniper fire. After the attack, you find a member of the squad lying unconscious on the ground.

1. Upon finding the casualty, what should you do first?

    a. clear the airway

    b. give the casualty the contents of the salt packet
        dissolved in a canteen of cool water

    c. open the airway, and look, listen, and feel to determine
        if the casualty is breathing

                                        Correct answer: "c"

Questions like this are hard because they are so long. Some people t   'o rush
through these questions. They pick the first answer that seems right and ('t
read the other options. They may think this saves time. But it may cost p   ts
because the right answer is overlooked. So, it is very important to read e
option carefully. Then select the one that best answers the question.

Now let's look at an example of a test question which is complex because of
the use of key words.

Example: Situation. You are on guard at your defensive position. It is dark.

    2. One hour later, you see a group of personnel moving in front of
    your position; they are close enough to hear you. What action
    should you take FIRST?

        a. let them pass to keep from giving away your position

        b. advance one man to be recognized

        c. immediately take them under fire

        d. order them to halt

A key word in this example is "FIRST". Overlooking key words can make you
miss the question even though you know the correct answer. In fact, this happens
very often. When you see one of these key words, be sure to stop and make a mental
note of it. Then pick the best answer. Finally, remember that key words can be in
both the question and in the answers. Be sure to check both the question and all
answers. Look for the key words before picking the right answer.

Now let's look at another example of a complex test question.

Example: NOTE: Refer to the fold-out of the Harlem, GA, mapsheet for the next two units.

Determine the Grid Coordinates of a Point on
a Military Map Using the Military Grid
Reference System.

General Situation for question 5. Your squad leader is conducting a class in reading grid coordinates on a map. He has given you a map and a protractor.

5. What are the six-digit grid coordinates of the mock village located east of BM441 (LG7788)?

a. LG802882

b. LG805885

c. LG806887

This question is complex because you must use _something else_ to answer it. No matter how smart you are, you cannot answer the question correctly without reading the map sheet. You have to turn to the mapsheet in the test booklet. Then you have to read the map, and you then have to return to this test question and pick the right answer.

When you have to use maps, charts or any other kind of new information, you must know exactly what to look for.

It is very important for you to (1) carefully read the question, (2) check to make certain that you are using the correct map, diagram or chart, (3) find the information in the map, diagram or chart that you need, (4) reread the question to make sure that the map, diagram or chart fits the test question, (5) select the correct answer. Remember that maps, diagrams and charts are there to help you pick the right answer. Use these cues wisely. _Don't_ ignore them!

Questions can also be complex because of what they ask you to do. That is, a question may make you read a long paragraph. Then you have to answer multiple choice questions. The questions may be written in a simple way. But the time it takes to read and understand the paragraph may make it very hard.

Another example might be a question that makes you do some math. The question may be very simple. But the time it takes to do the math may make the question harder.

So you must read, and reread, questions very carefully. This is really the only way to make it easy to understand and to answer. For very complex questions, break them down into smaller, easier parts. Ask yourself (a) what information is given; (b) what question is being asked, and (c) what choices for right answers are given?

3. Appropriate Guessing

The third step of test wiseness is good guessing. Most of us were taught that guessing at answers was not an OK thing to do. But if you think about it, that idea doesn't always make sense. There is no chance of getting a question right when you don't answer it. Usually you can see that one of the four answers is obviously wrong. This makes your chance of getting a question right much better. You now have one chance in three. That's better than the one in four you had at first.

Not only that, most people find one or two questions that they just don't know. Some people end up with too many unanswered questions and too little time. In both cases, "good" guessing is worth the try.

Remember that guessing need not be a "shot in the dark." There are two kinds of guessing: good guessing and blind guessing. Good guessing is when you can see that one or more of the answers are wrong; blind guessing is when a person doesn't know anything about the question. Good guessing is most likely to pay off.

For example, let's say there are 4 options, and you can see that two of them are wrong. The choice is now between just two options. Now you have a 50-50 chance to get a right one (one out of two). Blind guessing gives a person only a 25 percent chance (one out of four). It's easy to see that 50 percent is better than 25 percent. But twenty-five percent is better than zero percent. And zero percent is the chance of getting the question correct if it is not answered. Remember, though, that knowing the material is the best way to get a good test score.

SUMMARY

Time Management, Careful Reading, and Appropriate Guessing are three steps of test-taking. Thus, as a good test taker you will:

- figure out a working pace that helps you finish the test on time.

- understand the test directions before you start the test, and then read each test question carefully.

- think of the right answer to a question before you read the options. This gives you a little edge in selecting the right answer.

- clear up any questions about the test by (1) asking the instructor or proctor for help and/or (2) putting a check mark next to confusing questions. Then return to them after the rest of the questions have been answered.

- know that good guessing may sometimes be the best way to answer a difficult or confusing question.

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STUDY SKILLS QUESTIONNAIRE

DIRECTIONS: A number of statements which people have used to describe their study habits and skills are given below. Please read each statement carefully and then blacken the space on your answer sheet which best describes your study habits and skills. There are no right or wrong answers. Do not spend too much time on any one statement, but select the answer which best describes your study habits and skills. Notice that you are asked to describe your study skills in four basic areas (reading, memorization, test-taking, concentration management).

1. **Reading Comprehension Skills**

1. I get deeply involved with material I am studying (i.e., I really think about it rather than just trying to memorize it).

   a. almost always
   b. most of the time
   c. some of the time
   d. almost never

2. If I am reading some course material and cannot understand it, I keep going anyway in order to finish the assignment.

   a. very frequently
   b. frequently
   c. sometimes
   d. almost never

3. I would rate my ability to read and remember technical information as:

   a. well above average
   b. above average
   c. below average
   d. well below average

4. I would rate my ability to take good test notes:

   a. well above average
   b. above average
   c. below average
   d. well below average

5. In comparison to the amount of time spent reading your notes and the textbooks, how much time do you spend testing yourself on the material when studying for an exam?

   a. a large amount of time
   b. a moderate amount of time
   c. a small amount of time
   d. almost never

6. Do you try to figure something out when you can't understand it?

   a. almost always
   b. most of the time
   'c. some of the time
   d. almost never

7. You finish reading a lesson and find that you don't remember what you read. How often does this happen to you?

   a. very frequently
   b. frequently
   c. sometimes
   d. almost never

8. I think it is easy to find the main idea of a paragraph or passage.

   a. almost always
   b. most of the time
   c. some of the time
   d. almost never

II. Memorization Skills

9. Do you try to find personal meaning in the technical material to help you remember it?

   a. almost always
   b. most of the time
   c. some of the time
   d. almost never

10. My memory for facts is:

   a. well above average
   b. above average
   c. average
   d. below average

11. You have read some material for a lesson, and you feel that you understood pretty much what was being said. A classmate then asks you a question on the material or you try to recall some of the material yourself and find that you can't remember much of what you have read. How often does this happen to you?

   a. very frequently
   b. frequently
   c. sometimes
   d. almost never

12. When it's necessary for you to memorize material, how much time do you spend memorizing it?

   a. more than 1/2 my study time
   b. 1/2 my study time
   c. 1/4 to 1/2 of my study time
   d. I don't memorize material

13. To memorize something, I repeat it to myself many times.

    a. very frequently
    b. frequently
    c. sometimes
    d. almost never

14. To memorize something, I write it down several times.

    a. very frequently
    b. frequently
    c. sometimes
    d. almost never

15. How would you rate your ability to memorize and remember information?

    a. well above average
    b. above average
    c. below average
    d. far below average

III. Test Taking Skills

16. I would rate my ability to do well on multiple choice tests as:

    a. well above average
    b. · above average
    c. below average
    d. well below average

17. I usually read the test directions very carefully.

    a. very frequently
    b. frequently
    c. sometimes
    d. almost never

18. I would rate my ability to finish tests on time as:

    a. well below average
    b. below average
    c. above average
    d. well above average

19. You are taking a test and you come to a question for which you are
    sure you know the answer, but you just can't quite remember it.
    How often does this happen?

    a. very frequently
    b. frequently
    c. sometimes
    d. almost never

20. When taking an exam, I am usually feeling _____.

    a. very nervous and uptight
    b. somewhat nervous and uptight
    c. relatively relaxed
    d. very relaxed

21. You study very hard and know that you understand the material but when you sit down to take the test you forget everything you knew. How often does this happen to you?

    a. very frequently
    b. frequently
    c. sometimes
    d. almost never

IV. Concentration Management Skills

22. I would rate my ability to concentrate (compared to other students) as:

    a. well above average
    b. above average
    c. below average
    d. far below average

23. I would rate my ability to deal with distractions that occur while I'm studying as:

    a. well above average
    b. above average
    c. below average
    d. far below average

24. I would rate my ability to keep my feelings and emotions from interfering with my school work as:

    a. well above average
    b. above average
    c. below average
    d. far below average

25. I would rate my ability to deal with distractions that occur while I'm taking a test as:

    a. well above average
    b. above average
    c. below average
    d. far below average

26. Once I get started, I find it easy to continue studying for a relatively long time.

   a. almost always
   b. most of the time
   c. some of the time
   d. almost never

27. I enjoy studying. I am usually in a good mood when I am studying.

   a. almost always
   b. most of the time
   c. some of the time
   d. almost never

28. You are studying a lesson. After reading a number of paragraphs, you suddenly realize you have no idea what you just read because you have been thinking of other things. How often does this happen to you?

   a. very frequently
   b. frequently
   c. sometimes
   d. almost never

29. I get sleepy when I start to study.

   a. very frequently
   b. frequently
   c. sometimes
   d. almost never

30. If other students are studying near me, I have trouble blocking out noise in the room.

   a. very frequently
   b. frequently
   c. sometimes
   d. almost never